

## **Educational Profile of the USAF Officer Corps**

**AFIT Technical Memorandum, AFIT-EN-TM-02-1, April 2002**

**Charles J. Bridgman**

**Abstract:** The college degrees held by the United States Air Force Officer Corps are presented and analyzed. The basic data came from the “uniform officer record” dated January 31, 2002. The data is presented for the Officer Corps as a whole (Part I) and separately for the individual officer career fields (Part II). The percentage of officers holding an advanced degree is 52%, well above any comparable civilian benchmark. The majority of these advanced degrees (72%) were self-funded, mostly earned off-duty (night school). The data shows an unusually large number of masters degrees in engineering technology compared to civilian norms. The data also shows a systematic migration from entry BS degrees in engineering to other fields including but not limited to engineering technology.

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The views expressed in this report are those of the author and do not reflect the official policy or position of the United States Air Force, Department of Defense, or the United States Government.

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## PART I: EDUCATIONAL PROFILE OF THE USAF OFFICER CORPS

The college degrees held by the United States Air Force Officer Corps are presented and analyzed. The basic data came from the “uniform officer record” dated January 31, 2002. This record excludes general officers 0-7 and above, health professionals (physicians, dentists, nurses, etc.) and new accessions. The raw data was provided by the Military Personnel Center, DPS/ARR.

Figure Ia shows the Officer Corps broken down by educational area. Definitions of the educational areas are given in Appendix A. The percentage holding an advanced degree (white bars) is 52.4%. This compares to the US population as a whole with 8.2% advanced degree. A better benchmark might be advanced degrees among that fraction of the US population holding a bachelors degree or higher. Among this cohort 33% hold an advanced degree (Statistical Abstract of the United States - 2000, US Bureau of Census, Table 251).

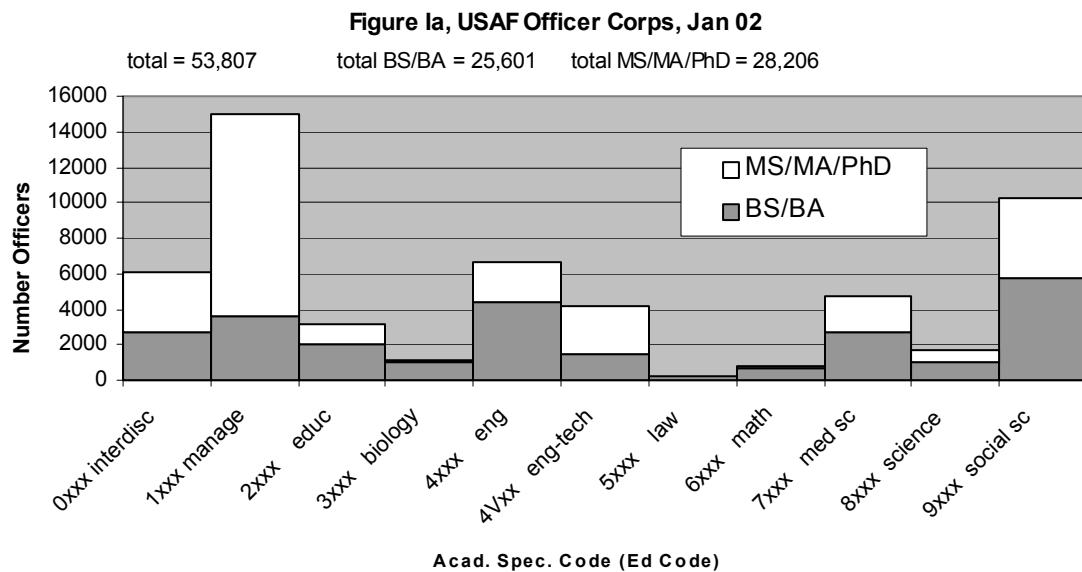


Figure Ib shows the entry level BS degree of all officers. The total numbers in Figure Ib are about 6% less than the total in Figure Ia because of missing data. (The Uniform Officer record has entries for only two degrees, highest and next highest. The bachelors’ degree information is lost on the records of officers with double masters or a PhD and a masters.)

**Figure Ib, USAF Officer Corps, Entry BS Degree Jan 02**

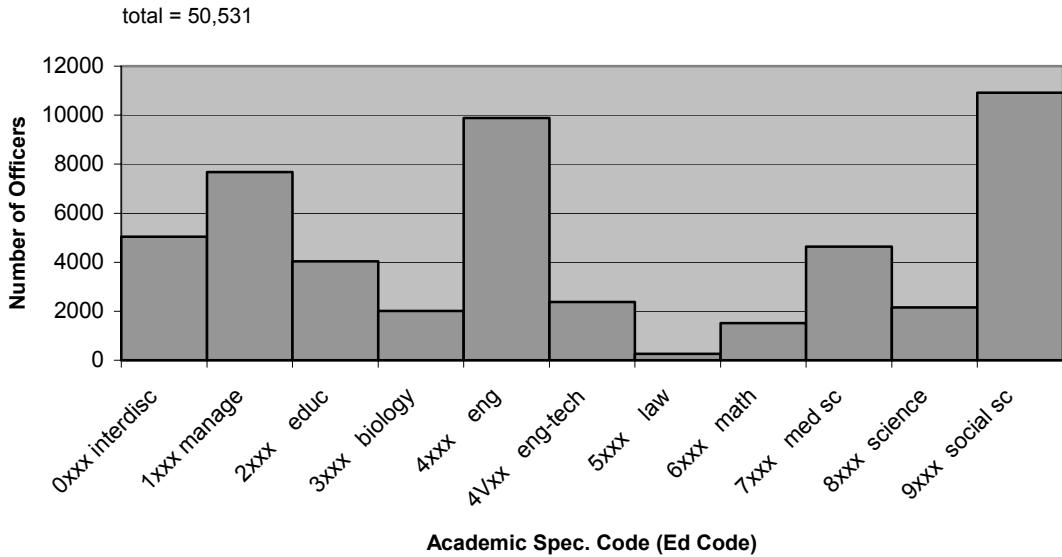
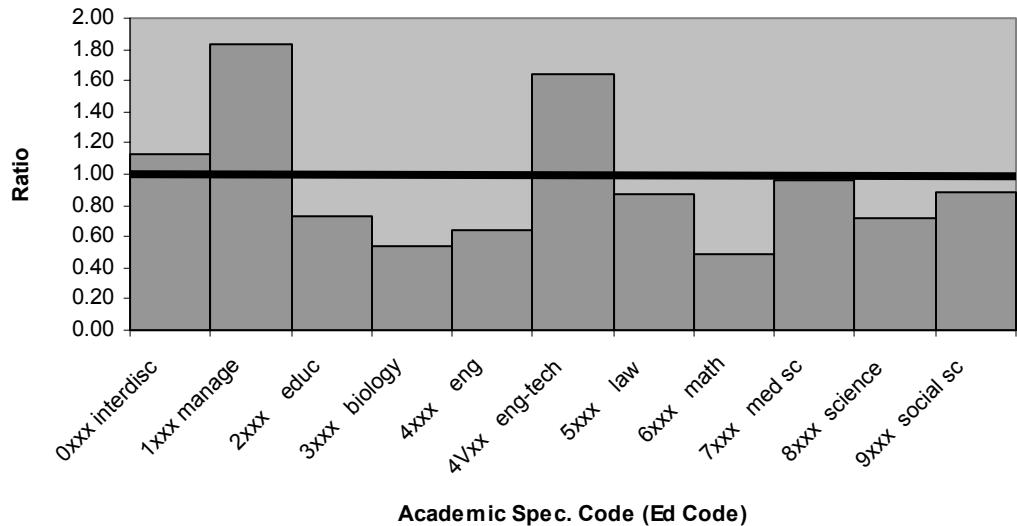


Figure Ia and Ib can be most efficiently compared by constructing a ratio of current degree area (whether BS or graduate) to original degree area for each degree area. These ratios are shown in Figure Ic.

**Figure Ic, Ratio: Current-Degree-Title/Original-Degree-Title, Jan 02**



If the ratio for a given educational area is unity, the number of current degrees (whether BS or graduate) in an educational area is the same as the number of original or entry degrees. When the ratio is greater than one, there has been a net migration into the area and when the ratio is less than one there has been a net migration out of the area. It can be seen that all educational areas except interdisciplinary, management and engineering technology have experienced an

outflow. Of the three areas showing a gain, the largest increases are shown by management and engineering technology. Engineering and the hard sciences show some of the largest outflows.

Engineering Technology deserves special discussion. The Air Force defines engineering technology (<http://rr/afit.edu/coding/accode.htm>) as:

*“A study of that part of the technological field which requires the practical application of mathematical, scientific, and engineering knowledge, methods, and principles combined with technical skills either to assist engineers or to provide independently the support for engineering activities; it lies between the craftsman and the engineer at the end of the spectrum closest to the engineer”.*

There are 4,153 Air Force officers with a highest degree in engineering technology. Of these 2,676 are at the MS level. These MS level engineering technology degrees include 918 officers who entered the Air Force with a BS degree in some field of engineering. Most (745) of the BS engineering- MS engineering technology officers are found in the Operations Career Field (AFSC 1xxx). Progression from a bachelor’s degree in engineering to a master’s degree in engineering technology is extremely rare outside of the Air Force.

Although, the USAF groups engineering technology as an educational field under the area of engineering, most educators would place it in a special category. In almost all states, graduates with a degree in engineering technology are not permitted to sit for the professional engineers examination. Rarely, if ever, would a graduate school of engineering admit a candidate with a BS in engineering technology because of concern about the level of mathematics and engineering science covered in a an engineering technology BS program. In fact, masters degree programs in engineering technology for candidates with a BS in engineering technology are rare. In the academic year 2000, the number of number of engineering graduate degrees awarded was 57% of the number of BS engineering degrees awarded (36,382/63,635). The comparable percentage for engineering technology was 2% (207/8,415). (from “Engineering and Technology Degrees, 2000” by the Engineering Workforce Commission of the American Association of Engineering Societies).

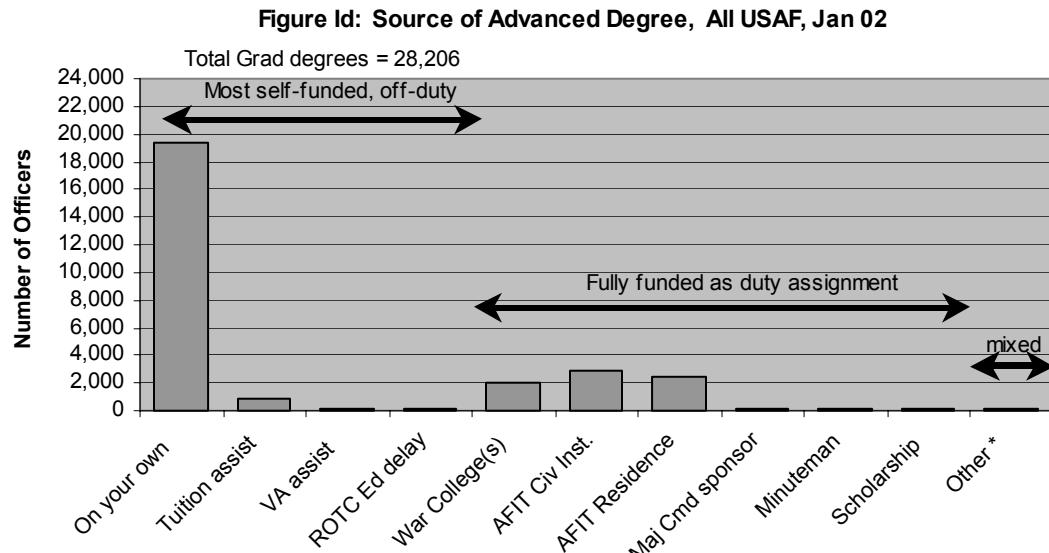
The educational specialties within engineering technology cover essentially the same spectrum as engineering itself, electrical, mechanical, aero., etc. Of the 2,646 MS degrees in engineering technology in the Air Force, 2,584 or 96.6% are in a single specialty, “Aero Science Technology”, 4VCY. The AFIT web site (reference above) defines this specialty as:

*Aerospace Science Technology: A study of aerodynamics, technical sciences, and managerial skills associated with the operation of aircraft, and providing services within the aviation industry.*

Of all the 2,584 Aero Science engineering technology degrees carried by Air Force Officers, 2,549 (98.6%) were granted by Embry-Riddle University of Daytona Beach Florida. All of these were self-funded (night school) degrees. Air Force wide there is only one requirement for a 4VCY master’s level position and that one requirement is not in the 1xxx career field.

The occurrence of self-funded graduate degrees in general is very high in the Air Force. Of the 28,206 advanced degrees held by Air Force officers, 20,276 or 71.9% of them were earned as self-funded (including 928 with Air Force tuition assistance, or VA tuition assistance).

Almost all of these were off-duty at night school. Figure Id shows the source of all advanced degrees in the Air Force



\* other includes USAFA programs, AECP, USAF Medical scholarship, Tri-service Med School, and bootstrap

While 694 schools are listed as the source of self-funded advanced degrees, nearly half of these degrees were granted by six universities:

- Embry-Riddle U.** Daytona Beach. **3,148** (mostly engineering technology).
- Webster U.** St. Louis. **2,243**. (mostly business administration and management).
- Troy State U.** Dothan.. **1,826**. (mostly business administration and management).
- Central Michigan U.** Mt. Pleasant. **861** (mostly administration of Air Force systems).
- U of Oklahoma** Norman. **578**. (mostly psychology and public administration).
- Golden Gate U.** San Francisco **577**. (mostly business administration and management).

**Summary:** The Air Force Officer corps is a well-educated group with over half holding an advanced degree. The vast majority of these advanced degrees were earned in non-duty status (typically night school) and fall heavily in the areas of business administration and social sciences. In addition there is a heavy concentration of advanced degrees in engineering technology for which the Air Force seems to have little direct use. An examination of original degree (BS at the time of commission) verses current degree (whether BS or graduate) shows an outflow of engineering and hard science into business administration, management and engineering technology.

In Part II of this profile, the corps is examined career field by career field with attention given to variations of individual career fields from the overall picture presented above.

## PART II: EDUCATIONAL PROFILE BY CAREER FIELD

In this part, the officer corps is first broken down into career fields (Air Force Specialty Codes or AFSC) without regard to the field or title of the individual degrees. The data is then sorted by education area (title of the degree) for each career field. The definitions of the career fields, and the major sub-categories of each career field are given in Appendix B.

Figure II shows the entire officer corps by AFSC:

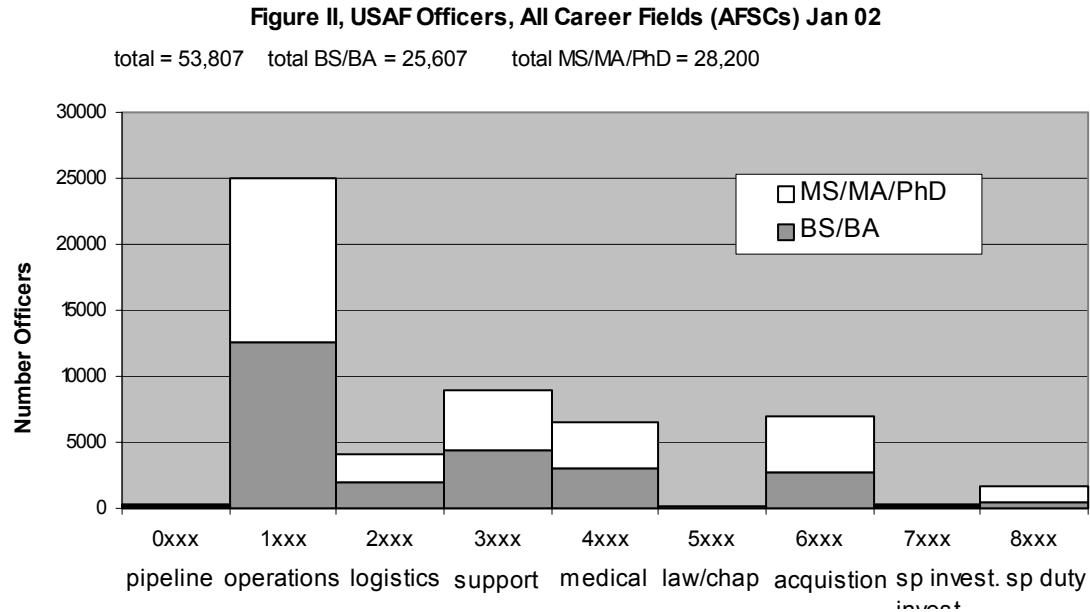


Figure 1a shows the operations career field broken down by educational area. The percentage holding an advanced degree is 49.6%, slightly, but not significantly, below the all Air Force percentage of 52.4%. The distribution by academic areas roughly parallels that of the Air Force as a whole (figure Ia) except for a relative increase in engineering technology. Weather officers are included in the Operations career field. A majority of the science degrees, AFSC 8xxx, in the operations career field are held by weather officers.

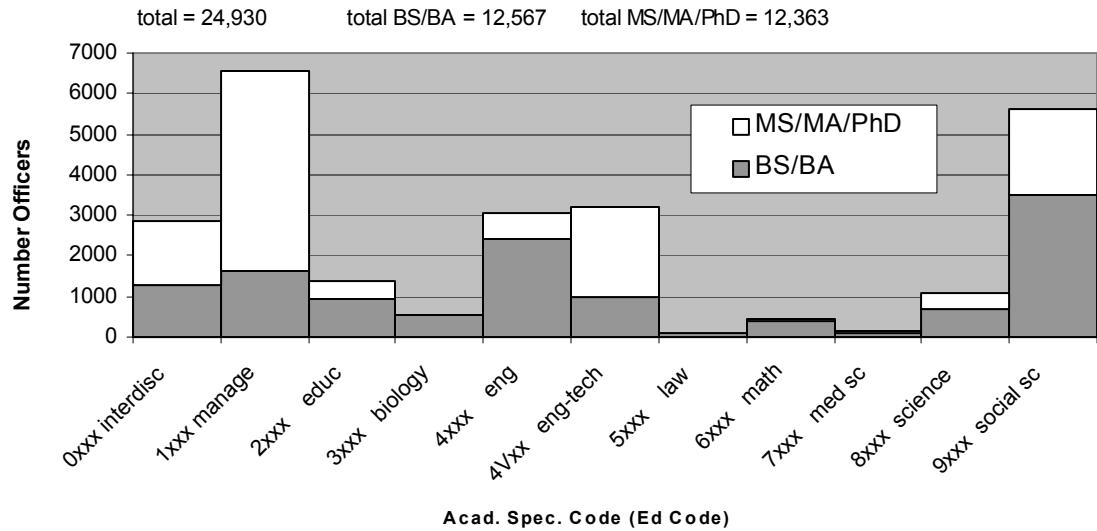
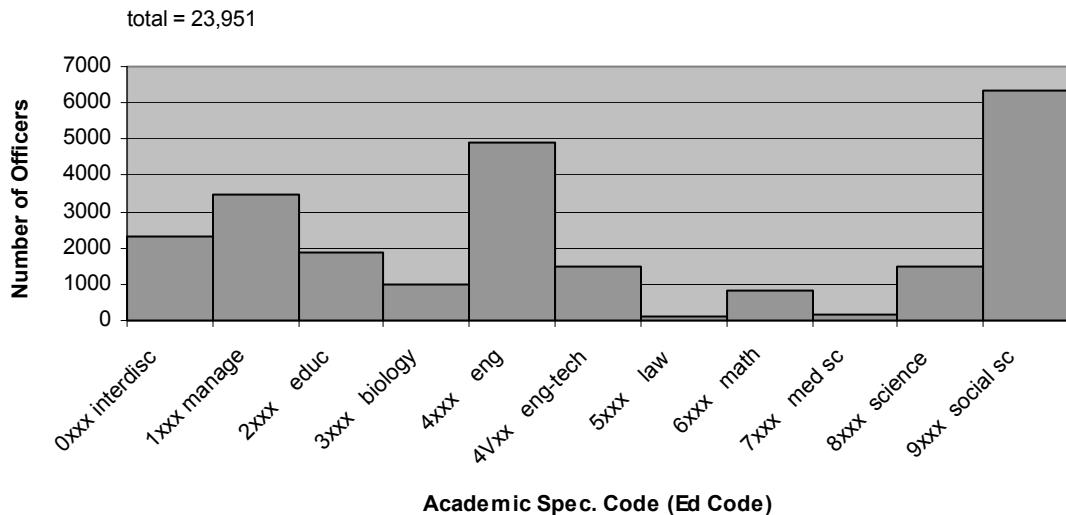
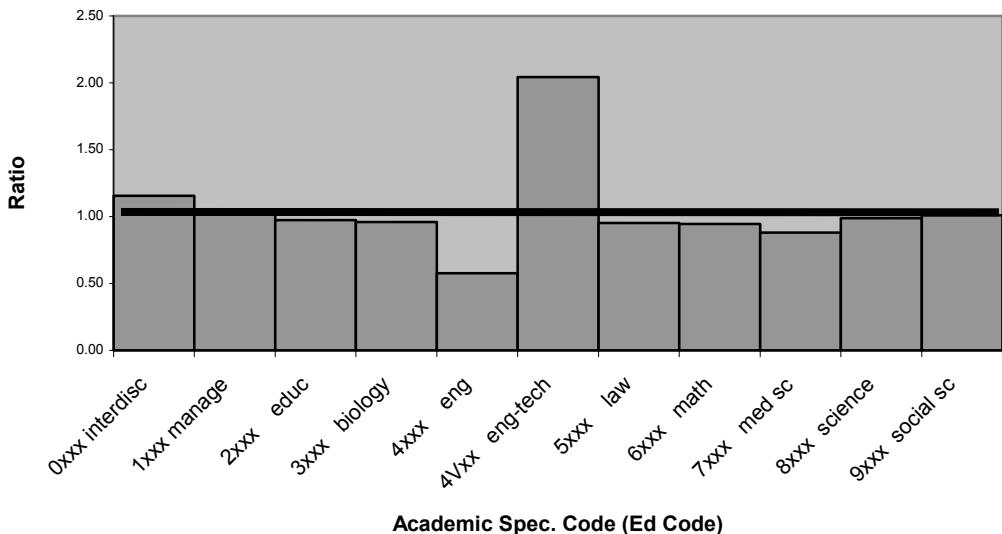
**Figure 1a, Operational Career Field (AFSC = 1xxx) Jan 02**

Figure 1b shows the entry-level degree of officers in the operations career field. This distribution parallels rather well that of the Air Force as a whole, figure 1b.

**Figure 1b, Operational Career Field (AFSC = 1xxx), Entry BS Degree Jan 02**

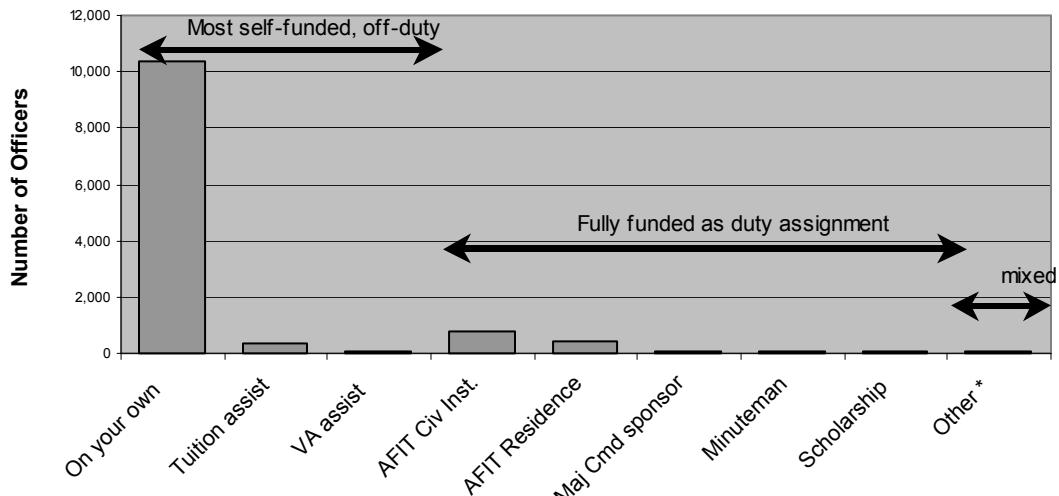
The ratio of current degree title, BS or advanced, (Figure 1a) to the original degree title (Figure 1b) is given by Figure 1c,. It can be seen that the ratio for most academic areas hovers about unity. This means that the number of current degrees in the area is about the same as the original or entry degree area. The exception is engineering which shows a ratio of 0.58 current to original and engineering technology, which shows a 204% gain in current degrees from the entry degrees. Of course not all operations career field engineers who earned an advanced degree opted for an engineering technology advanced degree, some went into management and a few into other fields, but 745 officers in this career field with an engineering BS earned an MS in engineering technology. This choice would be extremely rare in civilian higher education.

**Figure 1c, Ratio: Current-Degree-Title/Original-Degree-Title, Jan 02**



The source of advanced degrees in the operations career field is shown in Figure 1d. The occurrence of self-funded advanced degrees in the operations career field is very high. Of the 12,363 advanced degrees held by offices in this career field, 10, 845 or 87.7% were earned as self-funded, almost always at night school. This is higher than the Air Force wide average of 71.9%. Apparently the duty demands of the operations career field allow less opportunity for fully funded graduate education.

**Figure 1d: Source of Advanced Degree, AFSC 1xxx, Jan 02**

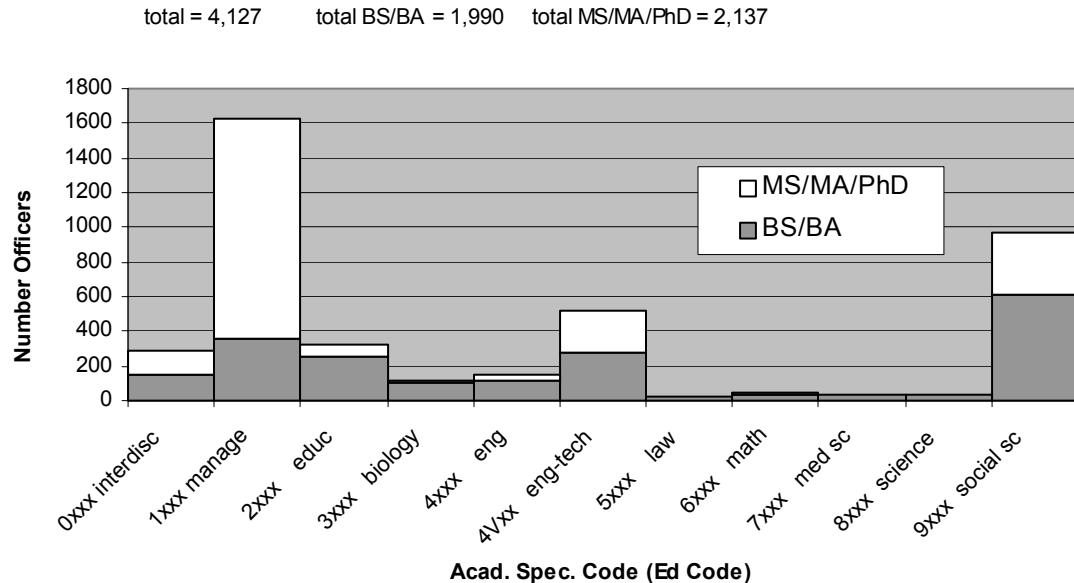


\* other includes USAFA programs, educational delay and bootstrap

### Logistics Career Field, AFSC = 2xxx

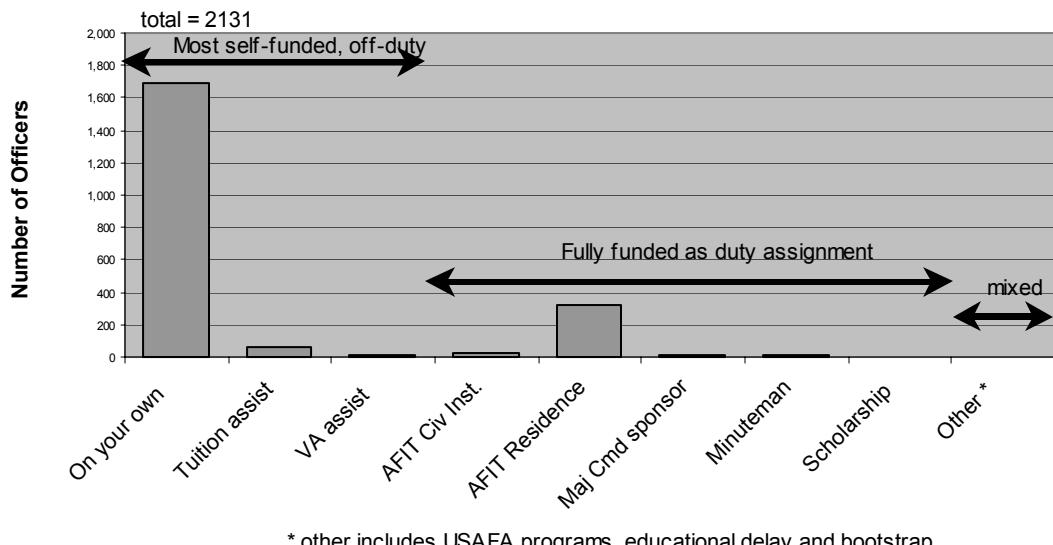
Figure 2a shows the logistics career field broken down by educational area.

**Figure 2a, Logistics Career Field (AFSC = 2xxx), Jan 02**



The percentage of advanced degrees in the logistics career field is 51.8%. The distribution of academic specialties in the logistics field is roughly the same as the Air Force wide distribution with the exception of fewer (by percent) engineering degrees both BS and MS. The majority (79%) of the degrees in this field are self-funded. Figure 2b shows the method of acquiring the advanced degree for logistics officers:

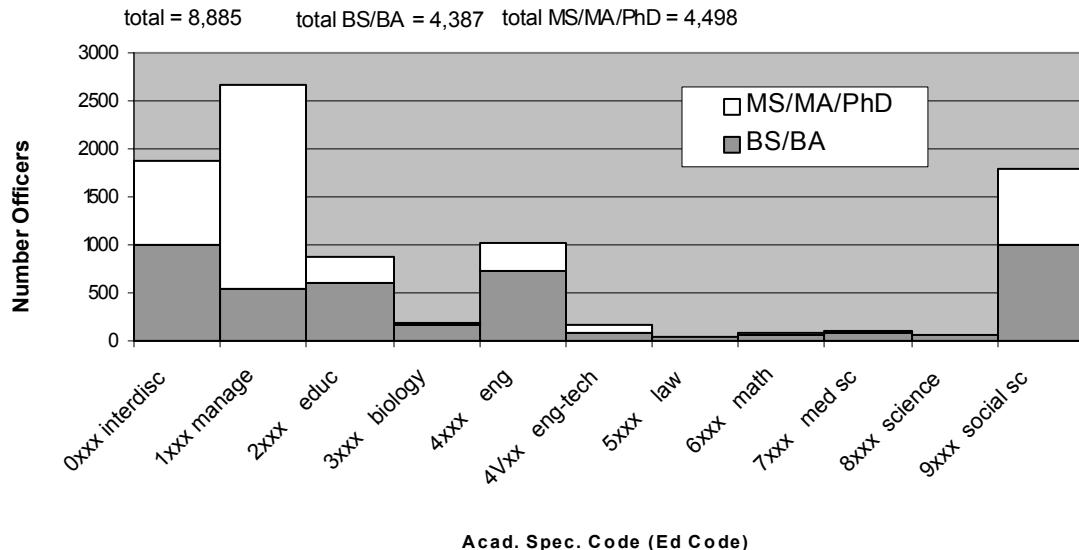
**Figure 2b: Source of Advanced Degree, AFSC 2xxx, Jan 02**



### Support Career Field, AFSC = 3xxx

Figure 3a shows the support career field broken down by educational area.

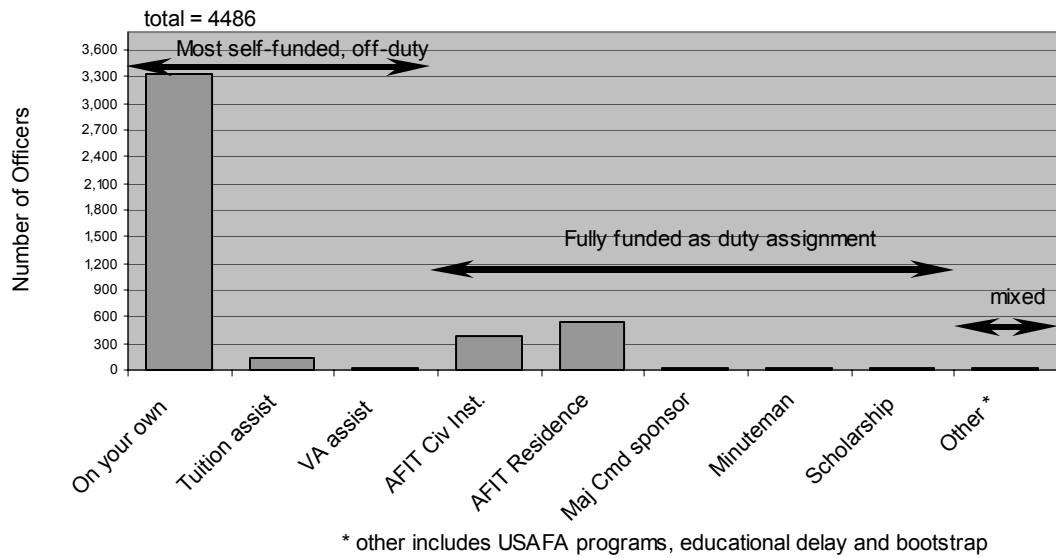
**Figure 3a, Support Career Field (AFSC = 3xxx), Jan 02**



The fraction of advanced degrees in the support career field is just over half (50.6%). The majority of the advanced degrees in this field are in management and the interdisciplinary area. Since this career field includes communications and computer engineers, the high number of interdisciplinary degrees, both bachelors and masters, is not unusual. The low number of engineering technology degrees (compared to most other career fields) is unusual. No explanation is apparent.

The source of advanced degrees in this field is again most self-funded as is shown in Figure 3b. The majority is again self-funded (74.2%) but the percentage of fully funded degrees (most AFIT residence and AFIT civilian institutions) is higher than the previous two career areas at 21.6%. This is explained by the presence of both computer engineers and civil engineers within the support career field.

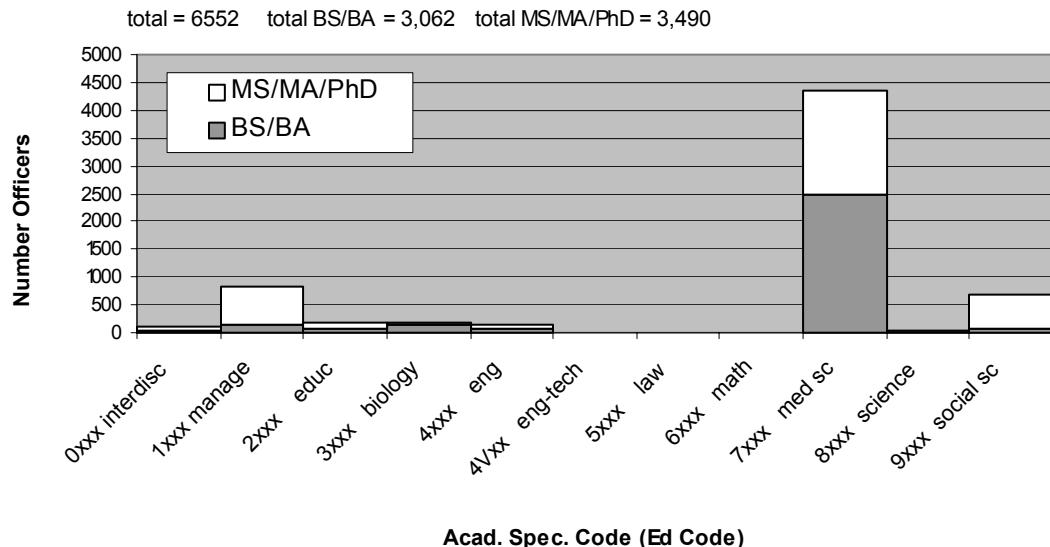
**Figure 3b: Source of Advanced Degree, AFSC 3xxx, Jan 02**



### Medical Career Field, AFSC = 4xxx

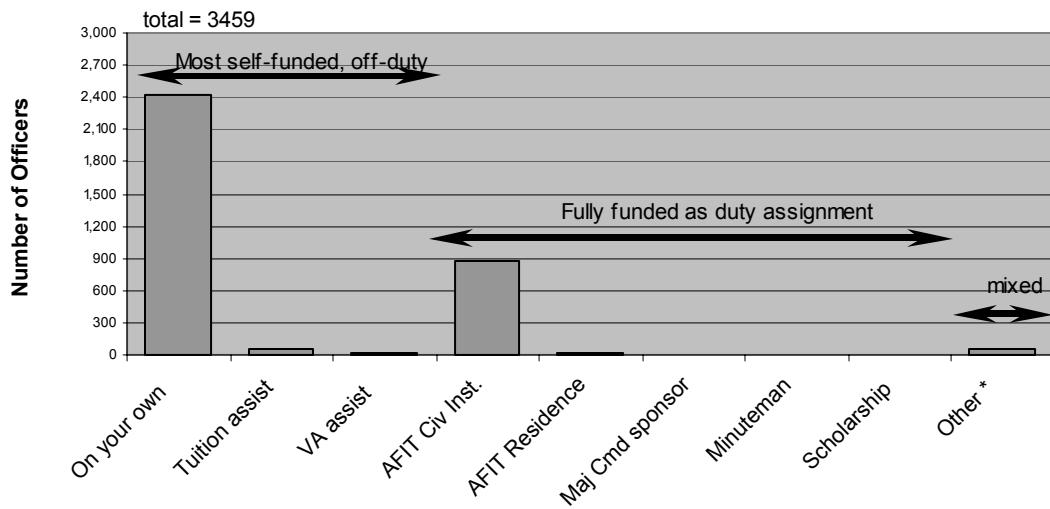
Figure 4a shows the medical career field broken down by educational area. No surprises here. The majority has degrees in the medical sciences academic area.

**Figure 4a, Medical Career Field (AFSC = 4xxx), Jan 02**



The source of the advanced degrees is shown in Figure 4b. Again the vast majority of advanced degrees are self-funded

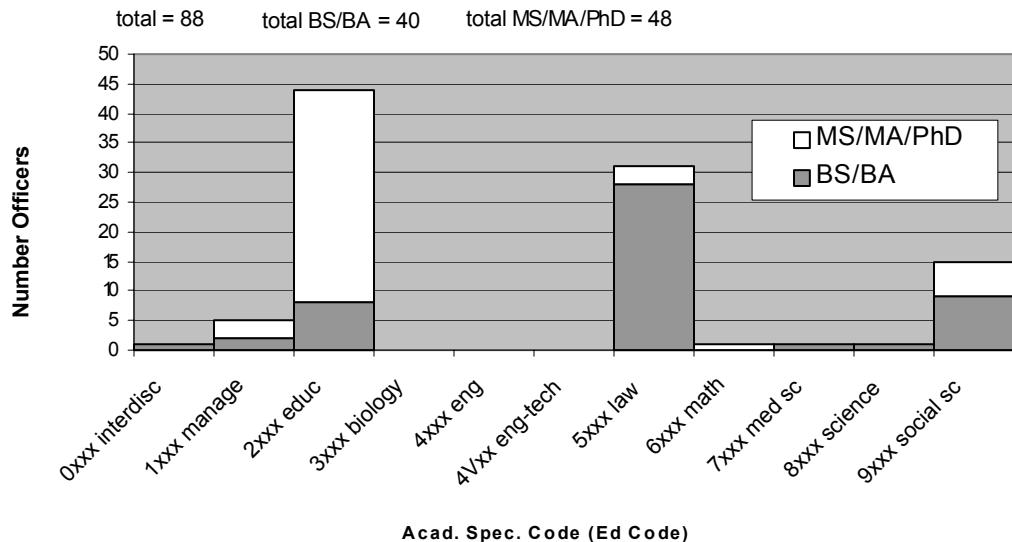
**Figure 4b: Source of Advanced Degree, AFSC 4xxx, Jan 02**



### Law/Chaplain Career Field, AFSC = 5xxx

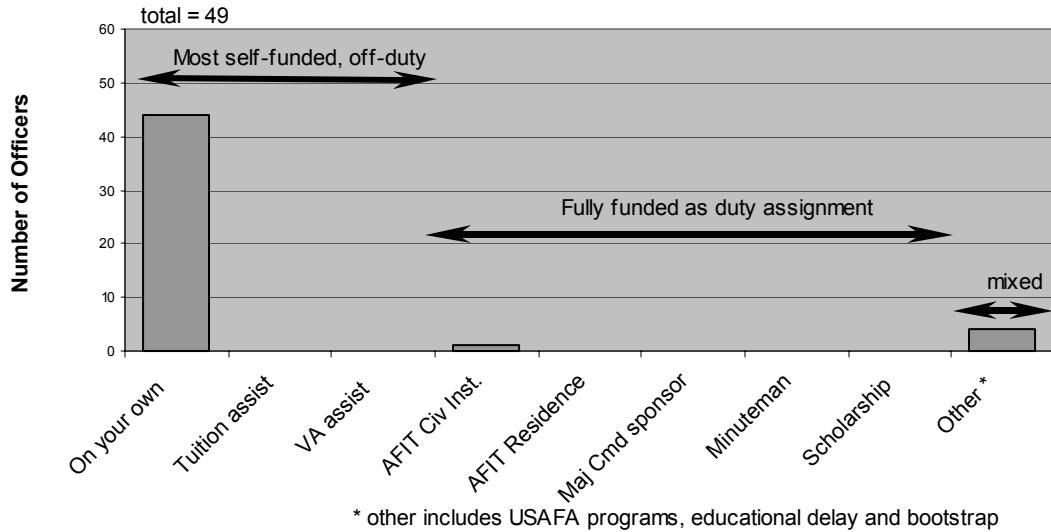
Figure 5a shows the law/chaplain career field broken down by educational area. Not surprisingly, the degrees for this field fall mainly in education (religious), law and social sciences. The percentage advanced degree is well over 50% (but the numbers are very small compared to other career fields).

**Figure 5a, Law/Chaplain Career Field (AFSC = 5xxx), Jan 02**



The source of the advanced degrees is shown in Figure 5b. Again the vast majority of advanced degrees are self-funded.

**Figure 5b: Source of Advanced Degree, AFSC 5xxx, Jan 02**

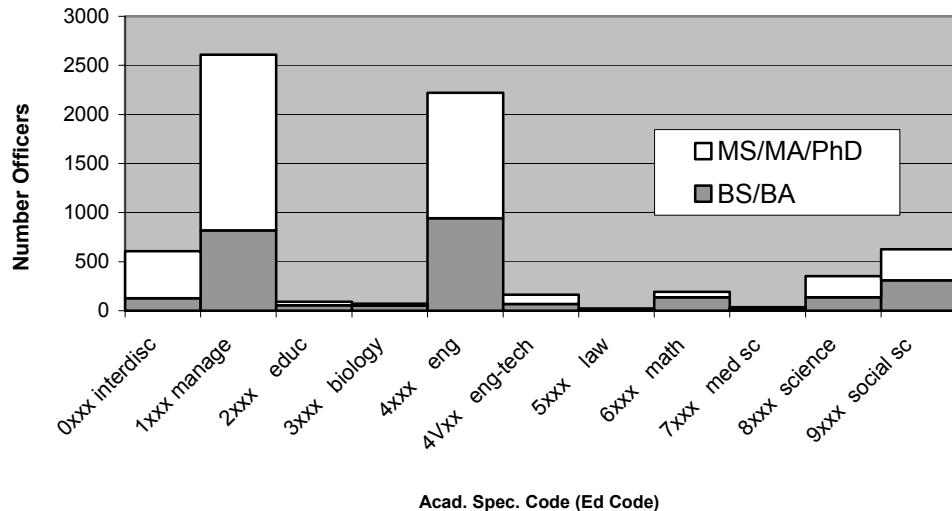


## Acquisitions Career Field, AFSC = 6xxx

Figure 6a shows the acquisitions career field broken down by educational area. With the exception of the special duty career field, the percentage of advanced degree for this career field is the highest of any career field, 61.5%. Engineering Technology degrees (4Vxx) are proportionately smaller in this field, than any other career field.

Figure 6a, Acquisition Career Field (AFSC = 6xxx), Jan 02

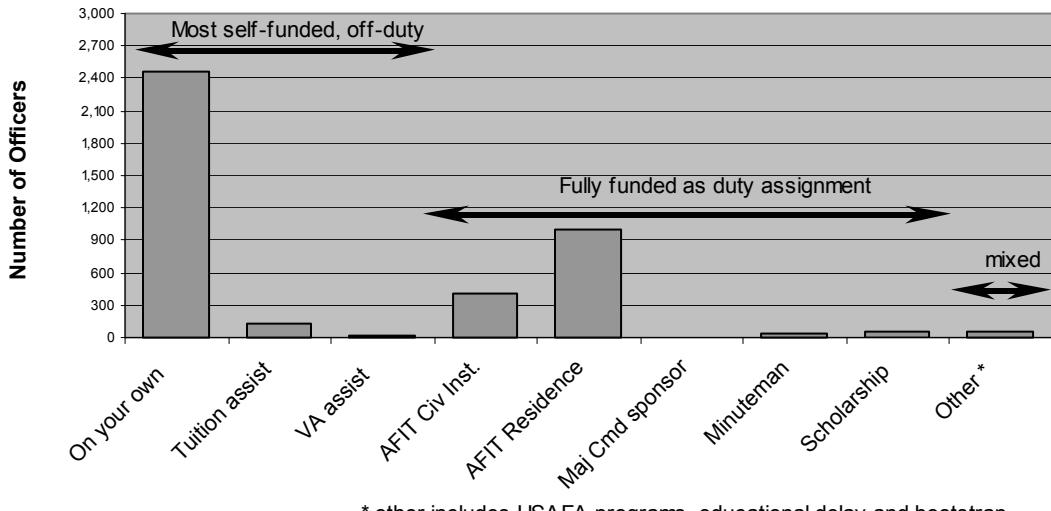
total = 6,990 total BS/BA = 2,693 total MS/MA/PhD = 4,297



While large numbers of these advanced degrees were fully funded (mostly through AFIT residence and civilian institutions), a even larger number were self-funded as shown in Figure 6b. The relatively large numbers of AFIT Residence as a source of graduate degrees for the Acquisition Career field is a direct result of the Air Force requirements system that has validated advanced degrees in science and engineering almost exclusively in this career field.

**Figure 6b: Source of Advanced Degree, AFSC 6xxx, Jan 02**

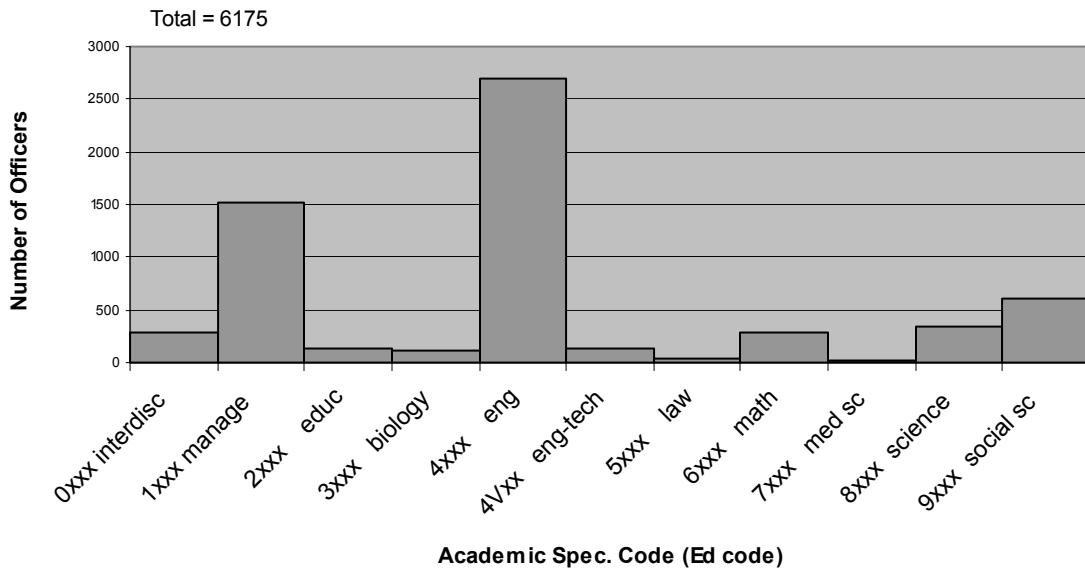
total = 4160



\* other includes USAFA programs, educational delay and bootstrap

The original degrees (at commission) of officers in the acquisition career field are shown in Figure 6c

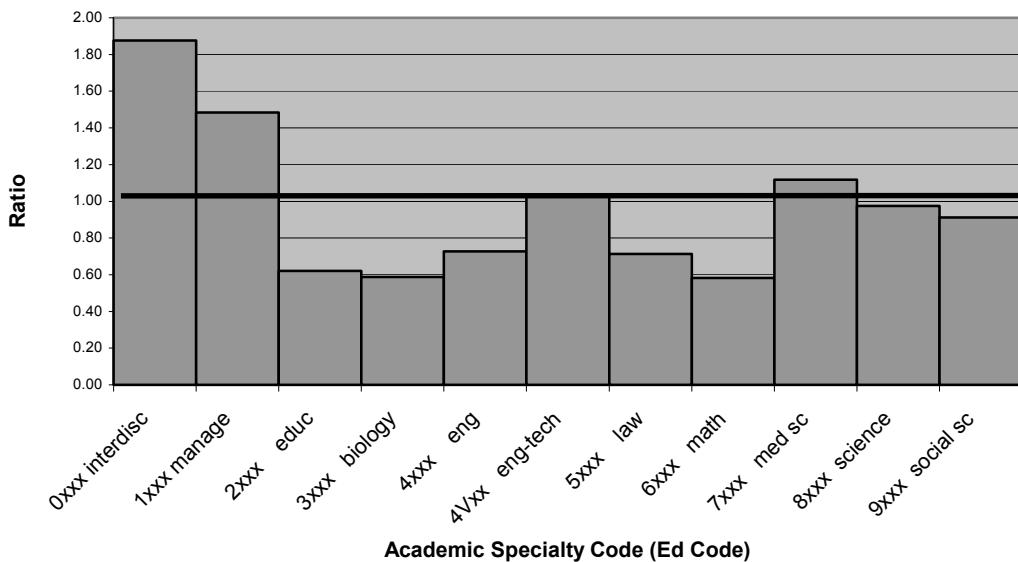
**Figure 6c: Acquisition Career Field (AFSC = 6xxx) Original BS Deg. Jan 02**



f

Figure 6d shows the ratio of current degree title to original degree title. Again those academic area showing a ratio of less than one show an outflow of officers from their undergraduate discipline to some other graduate discipline. Outflows in education, biology, law and mathematics is not surprising but the outflow in engineering is surprising. Even in the Acquisition Career Field, the current requirements system is converting engineers to graduate degrees in mostly the management and interdisciplinary areas.

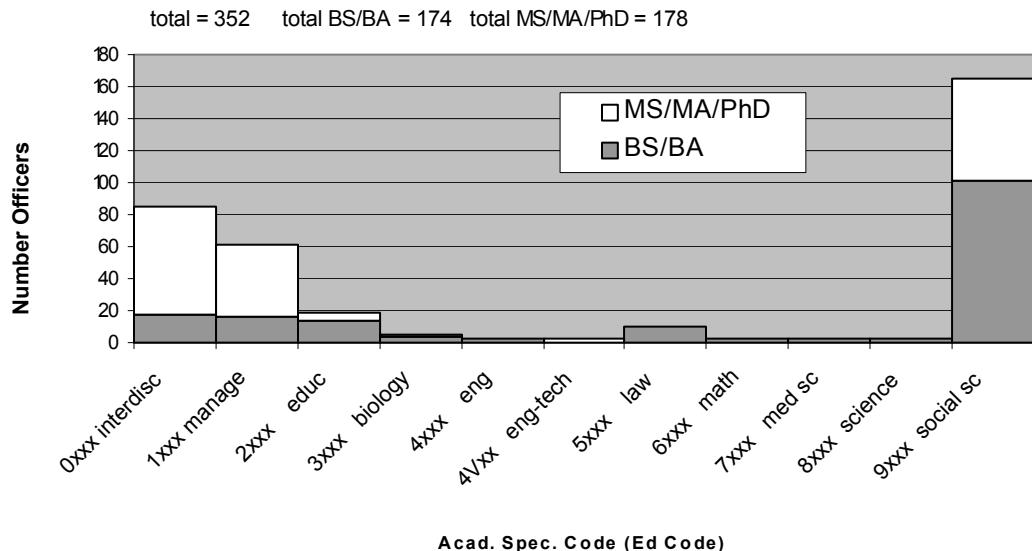
**Figure 6d: Ratio: Current-Degree-Title/Original-Degree Title, AFSC 6xxx, Jan 02**



### Special Investigations Career Field, AFSC = 7xxx

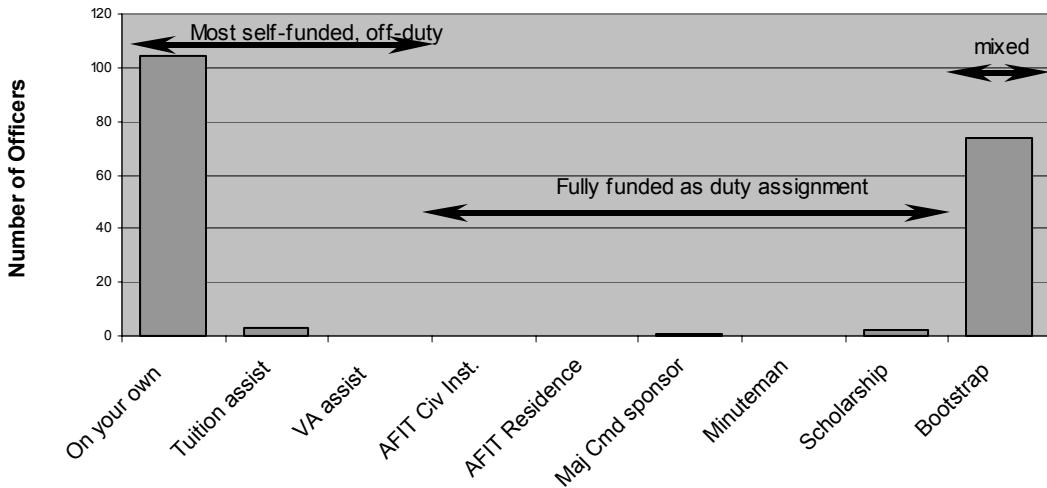
Figure 7a shows the special investigations career field broken down by educational area. The concentration in social sciences includes criminology and like specialties.

**Figure 7a, Special Investigations Career Field (AFSC = 7xxx), Jan 02**



The source of the advanced degrees in this field is almost exclusively “on your own” and bootstrap. (TDY to school for the final term(s) with tuition borne by the officer. The special investigations career field shows a greater utilization of bootstrap than any other field.

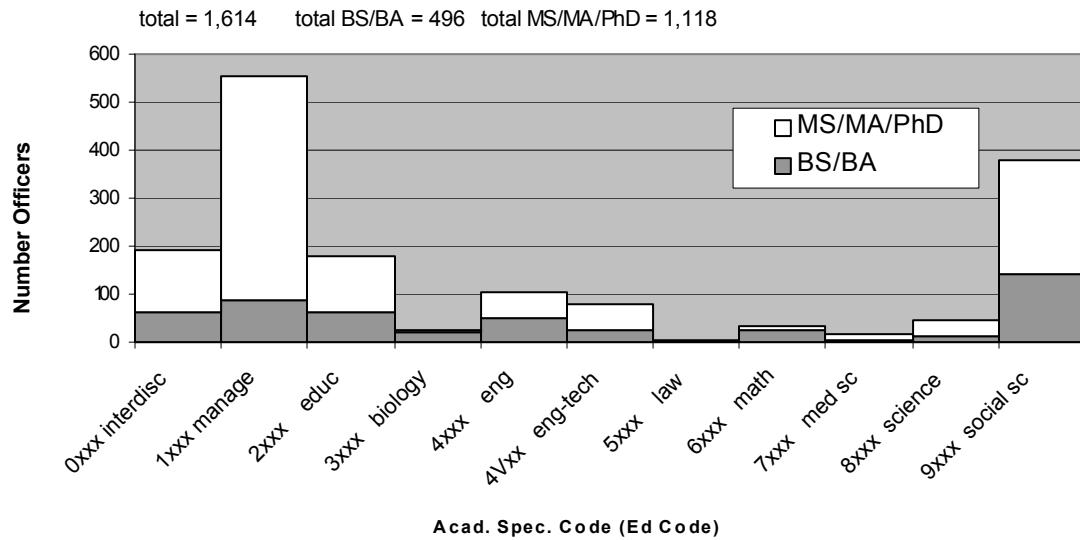
**Figure 7b: Source of Advanced Degree, AFSC 7xxx, Jan 02**



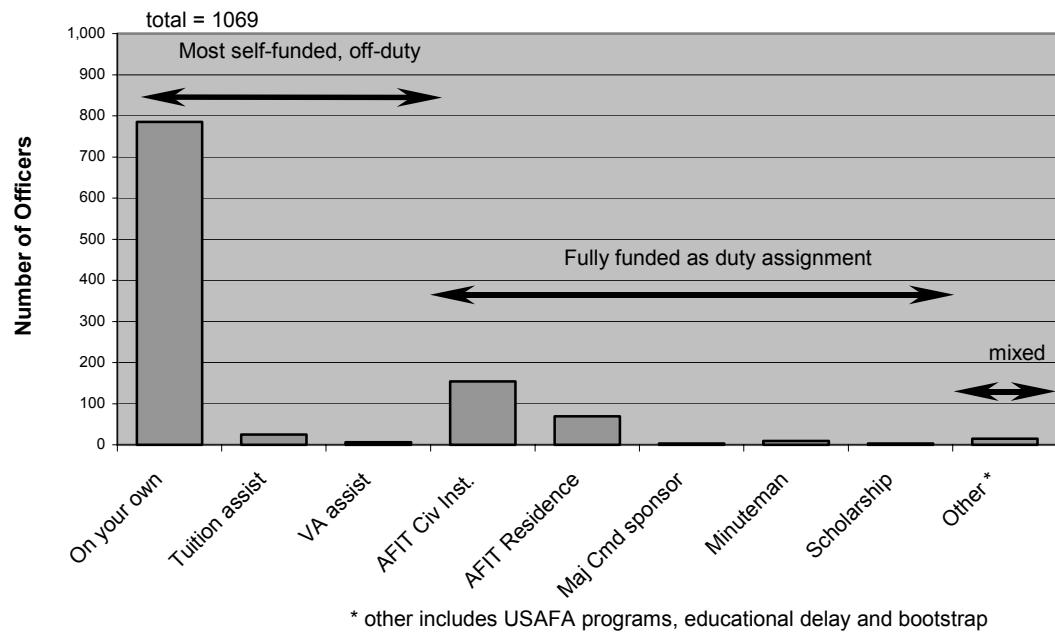
### Special Duty Career Field, AFSC = 8xxx

Figure 8a shows the special duty career field broken down by educational area. It has the greatest percentage of advanced degrees (69.3%) than any career field. The distribution of educational areas is roughly proportional to the operations career field except for a depletion of the engineering area.

**Figure 8a, Special Duty Identifiers (AFSC = 8xxx), Jan 02**



The source of the advanced degrees is shown in Figure 8b. Again self-funding predominates

**Figure 8b: Source of Advanced Degree, AFSC 8xxx, Jan 02**

## Appendix A: Academic Specialty Code Definitions

The Academic Specialty Code (or “ed code”) is a four digit code where the first character represents the general area of study; for example 8 represents Physical Sciences. The second character is the major academic field; for example 8C is Chemistry. The third character is the specialization; for example 8CC is Biochemistry. The fourth character is the sub-specialization; for example 8CCM is Microbiological Chemistry.

The entries below list the major academic fields in each area. The fields are listed in approximate order of their frequency of appearance in the officer record. The lists below are incomplete. (The complete lists including specialties and subspecialties within the degree field are given at the web site: <http://rr/afit.edu/coding/accode.htm>).

**0xxx, Interdisciplinary Studies:** Computer science, information systems management, systems management, national security and strategic studies, liberal studies, operations research, area specialists, space operations and strategic intelligence.

**1xxx, Administration and Management:** Business administration, accounting, financial management, logistics management, environmental management, information systems management, maintenance management, personnel, transportation systems, and military arts and sciences.

**2xxx, Arts, Humanities and Education:** Education (all levels), communication arts, languages, fine arts, recreation, humanities, religion and philosophy.

**3xxx, Biological and Agricultural Sciences:** Biology, health physics, and agricultural sciences

**4xxx, Engineering and Technologies:** Electrical, mechanical, civil, aeronautical, aerospace, engineering science, industrial, computer, and engineering technologies of all types.

**5xxx, Law:** All specialties.

**6xxx, Mathematics:** Pure and applied mathematics and statistics.

**7xxx, Special Investigations:** Self-explanatory.

**8xxx, Special Duty Identifiers:** Miscellaneous but mostly officers involved in the delivery of training, instructors, training managers, etc. Does not include faculty at Air University or Academy who maintain their basic specialty code, usually with a “T” prefix (for instructor).

## APPENDIX B: Air Force Specialty Code Definitions

The Air Force Specialty Code is a four digit code describing Officers job descriptions. The first digit designates the career area while the second through fourth digits designate specialization within the field. ( See AFMAN 36-2105, dated 31 October 2000 for complete lists.)

**0xxx, Pipeline:** Consists mostly of officers in training that will result in the award of an AFSC.

**1xxx, Operations:** Pilots, navigators, space and missile specialists, intelligence and weather officers.

**2xxx, Logistics:** Aircraft maintenance, munitions and missile maintenance, supply and transportation.

**3xxx, Support:** Communications and information engineers (computers), civil engineers, security forces, manpower.

**4xxx, Medical:** Biomedical clinicians and specialists (e.g. Optometrists, Pharmacists etc.) but not physicians, nurses, or dentists who are not listed on the basic data used here.

**5xxx, Law/Chaplain:** Self-explanatory.

**6XXX, Acquisition and Financial Management:** Scientists, engineers acquisition managers, financial officers.

**7xxx, Medical Sciences:** Nursing, pharmacology, physical therapy, laboratory specialty, hospital administration.

**8xxx, Physical Sciences:** Meteorology, Physics, Chemistry, Earth Science.

**9xxx, Social Sciences:** Political Science, psychology, public administration, history, sociology, criminal justice, economy, geography.



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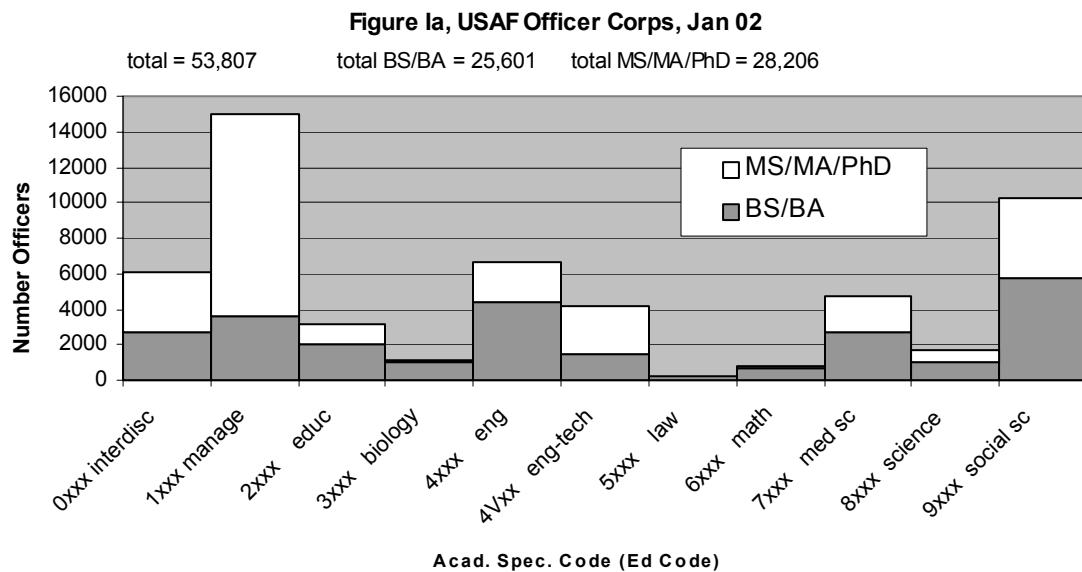


Figure Ib shows the entry level BS degree of all officers. The total numbers in Figure Ib are about 6% less than the total in Figure Ia because of missing data. (The Uniform Officer record has entries for only two degrees, highest and next highest. The bachelors’ degree information is lost on the records of officers with double masters or a PhD and a masters.)

**Figure Ib, USAF Officer Corps, Entry BS Degree Jan 02**

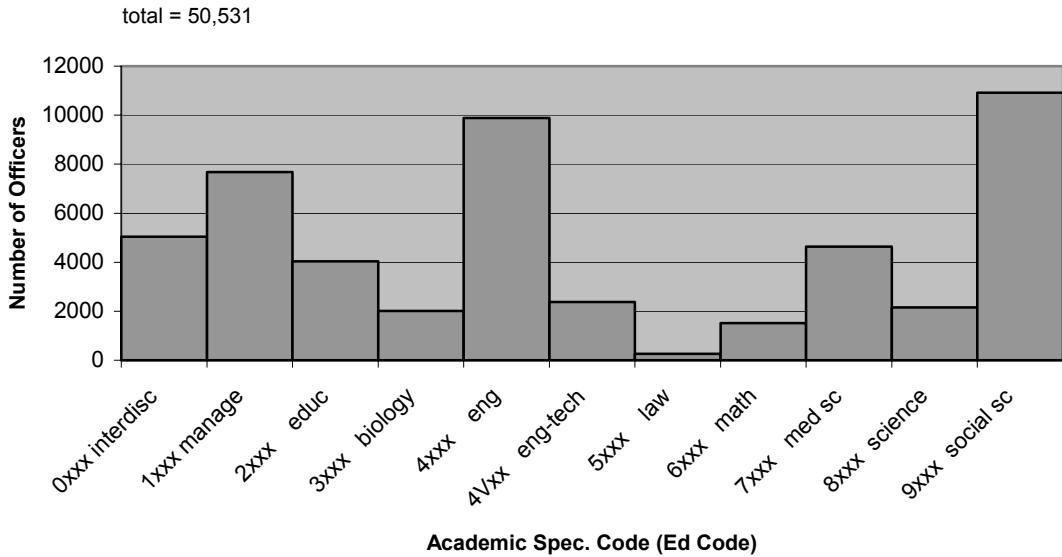
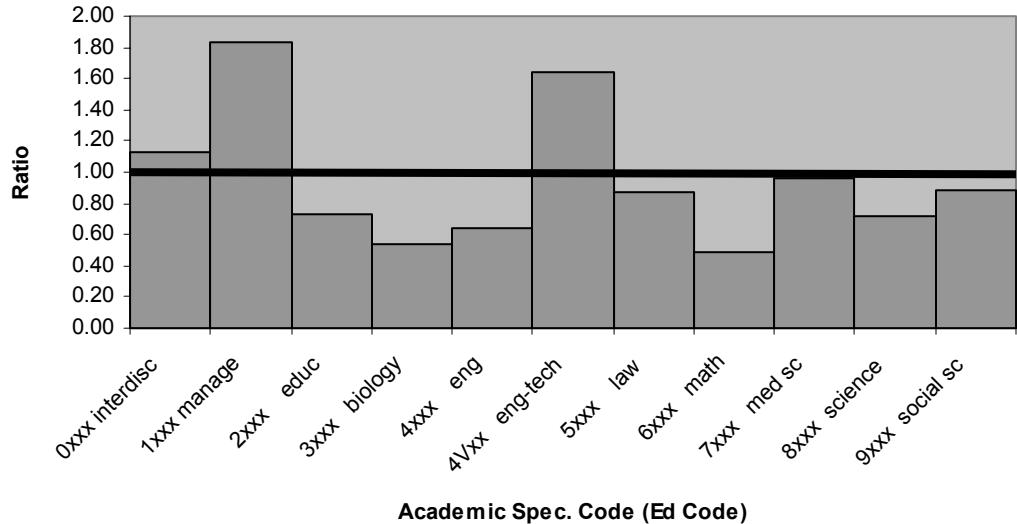


Figure Ia and Ib can be most efficiently compared by constructing a ratio of current degree area (whether BS or graduate) to original degree area for each degree area. These ratios are shown in Figure Ic.

**Figure Ic, Ratio: Current-Degree-Title/Original-Degree-Title, Jan 02**



If the ratio for a given educational area is unity, the number of current degrees (whether BS or graduate) in an educational area is the same as the number of original or entry degrees. When the ratio is greater than one, there has been a net migration into the area and when the ratio is less than one there has been a net migration out of the area. It can be seen that all educational areas except interdisciplinary, management and engineering technology have experienced an

outflow. Of the three areas showing a gain, the largest increases are shown by management and engineering technology. Engineering and the hard sciences show some of the largest outflows.

Engineering Technology deserves special discussion. The Air Force defines engineering technology (<http://rr/afit.edu/coding/accode.htm>) as:

*“A study of that part of the technological field which requires the practical application of mathematical, scientific, and engineering knowledge, methods, and principles combined with technical skills either to assist engineers or to provide independently the support for engineering activities; it lies between the craftsman and the engineer at the end of the spectrum closest to the engineer”.*

There are 4,153 Air Force officers with a highest degree in engineering technology. Of these 2,676 are at the MS level. These MS level engineering technology degrees include 918 officers who entered the Air Force with a BS degree in some field of engineering. Most (745) of the BS engineering- MS engineering technology officers are found in the Operations Career Field (AFSC 1xxx). Progression from a bachelor’s degree in engineering to a master’s degree in engineering technology is extremely rare outside of the Air Force.

Although, the USAF groups engineering technology as an educational field under the area of engineering, most educators would place it in a special category. In almost all states, graduates with a degree in engineering technology are not permitted to sit for the professional engineers examination. Rarely, if ever, would a graduate school of engineering admit a candidate with a BS in engineering technology because of concern about the level of mathematics and engineering science covered in a an engineering technology BS program. In fact, masters degree programs in engineering technology for candidates with a BS in engineering technology are rare. In the academic year 2000, the number of number of engineering graduate degrees awarded was 57% of the number of BS engineering degrees awarded (36,382/63,635). The comparable percentage for engineering technology was 2% (207/8,415). (from “Engineering and Technology Degrees, 2000” by the Engineering Workforce Commission of the American Association of Engineering Societies).

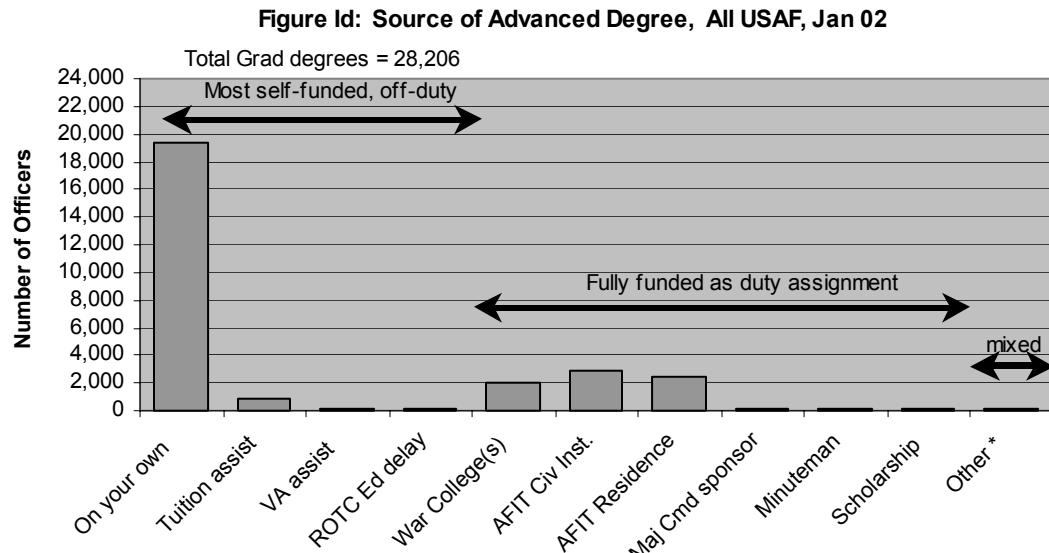
The educational specialties within engineering technology cover essentially the same spectrum as engineering itself, electrical, mechanical, aero., etc. Of the 2,646 MS degrees in engineering technology in the Air Force, 2,584 or 96.6% are in a single specialty, “Aero Science Technology”, 4VCY. The AFIT web site (reference above) defines this specialty as:

*Aerospace Science Technology: A study of aerodynamics, technical sciences, and managerial skills associated with the operation of aircraft, and providing services within the aviation industry.*

Of all the 2,584 Aero Science engineering technology degrees carried by Air Force Officers, 2,549 (98.6%) were granted by Embry-Riddle University of Daytona Beach Florida. All of these were self-funded (night school) degrees. Air Force wide there is only one requirement for a 4VCY master’s level position and that one requirement is not in the 1xxx career field.

The occurrence of self-funded graduate degrees in general is very high in the Air Force. Of the 28,206 advanced degrees held by Air Force officers, 20,276 or 71.9% of them were earned as self-funded (including 928 with Air Force tuition assistance, or VA tuition assistance).

Almost all of these were off-duty at night school. Figure Id shows the source of all advanced degrees in the Air Force



\* other includes USAFA programs, AECP, USAF Medical scholarship, Tri-service Med School, and bootstrap

While 694 schools are listed as the source of self-funded advanced degrees, nearly half of these degrees were granted by six universities:

- Embry-Riddle U.** Daytona Beach. **3,148** (mostly engineering technology).
- Webster U.** St. Louis. **2,243**. (mostly business administration and management).
- Troy State U.** Dothan.. **1,826**. (mostly business administration and management).
- Central Michigan U.** Mt. Pleasant. **861** (mostly administration of Air Force systems).
- U of Oklahoma** Norman. **578**. (mostly psychology and public administration).
- Golden Gate U.** San Francisco **577**. (mostly business administration and management).

**Summary:** The Air Force Officer corps is a well-educated group with over half holding an advanced degree. The vast majority of these advanced degrees were earned in non-duty status (typically night school) and fall heavily in the areas of business administration and social sciences. In addition there is a heavy concentration of advanced degrees in engineering technology for which the Air Force seems to have little direct use. An examination of original degree (BS at the time of commission) verses current degree (whether BS or graduate) shows an outflow of engineering and hard science into business administration, management and engineering technology.

In Part II of this profile, the corps is examined career field by career field with attention given to variations of individual career fields from the overall picture presented above.

## PART II: EDUCATIONAL PROFILE BY CAREER FIELD

In this part, the officer corps is first broken down into career fields (Air Force Specialty Codes or AFSC) without regard to the field or title of the individual degrees. The data is then sorted by education area (title of the degree) for each career field. The definitions of the career fields, and the major sub-categories of each career field are given in Appendix B.

Figure II shows the entire officer corps by AFSC:

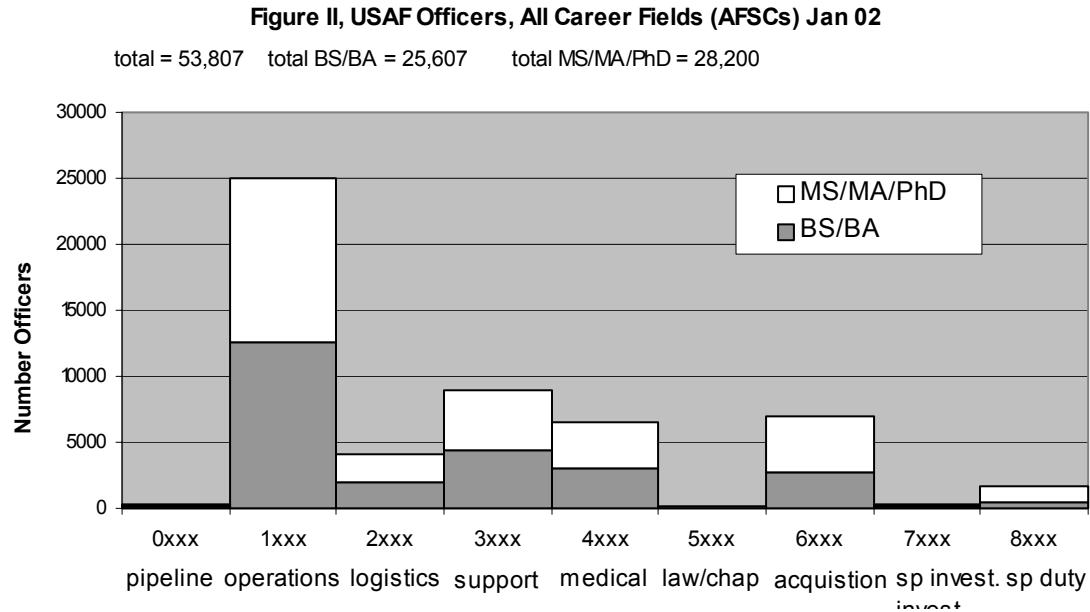


Figure 1a shows the operations career field broken down by educational area. The percentage holding an advanced degree is 49.6%, slightly, but not significantly, below the all Air Force percentage of 52.4%. The distribution by academic areas roughly parallels that of the Air Force as a whole (figure Ia) except for a relative increase in engineering technology. Weather officers are included in the Operations career field. A majority of the science degrees, AFSC 8xxx, in the operations career field are held by weather officers.

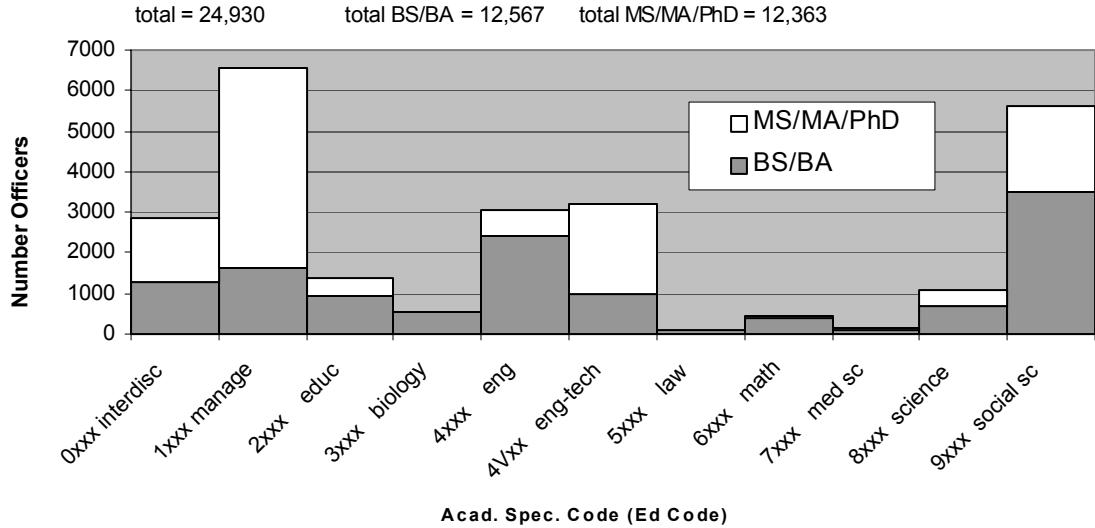
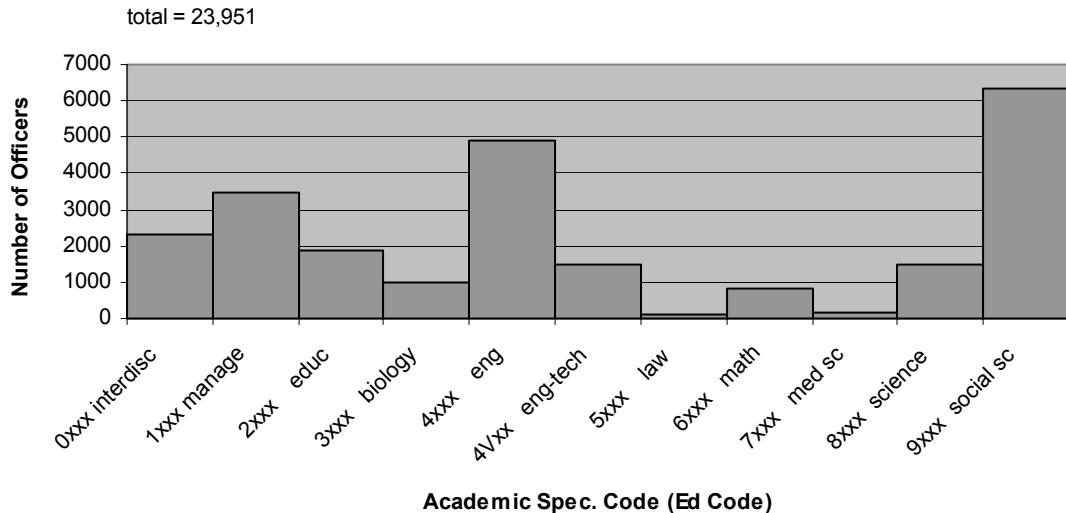
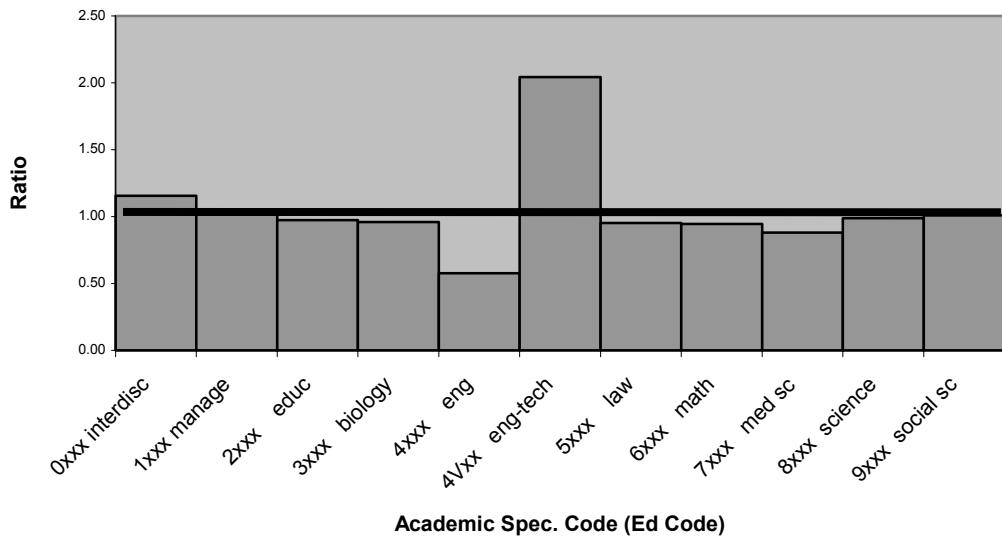
**Figure 1a, Operational Career Field (AFSC = 1xxx) Jan 02**

Figure 1b shows the entry-level degree of officers in the operations career field. This distribution parallels rather well that of the Air Force as a whole, figure 1b.

**Figure 1b, Operational Career Field (AFSC = 1xxx), Entry BS Degree Jan 02**

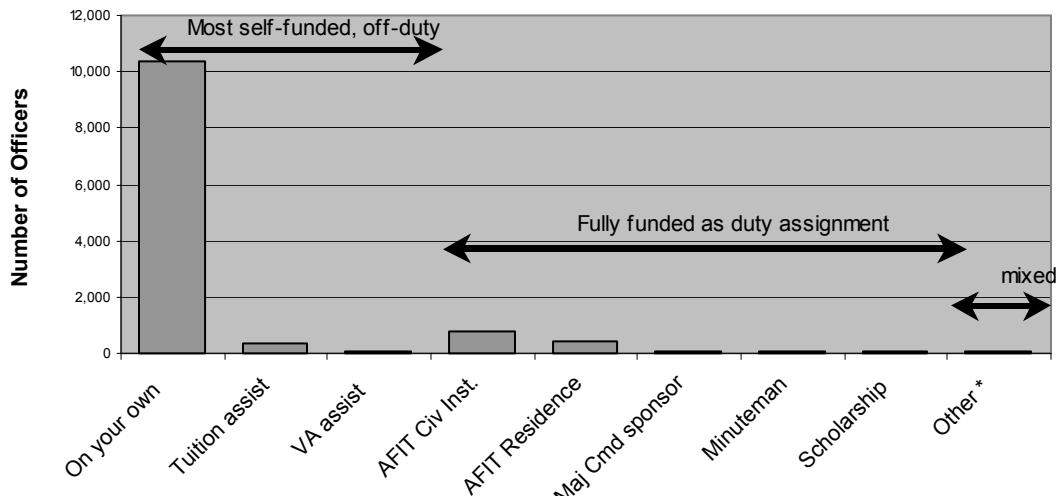
The ratio of current degree title, BS or advanced, (Figure 1a) to the original degree title (Figure 1b) is given by Figure 1c,. It can be seen that the ratio for most academic areas hovers about unity. This means that the number of current degrees in the area is about the same as the original or entry degree area. The exception is engineering which shows a ratio of 0.58 current to original and engineering technology, which shows a 204% gain in current degrees from the entry degrees. Of course not all operations career field engineers who earned an advanced degree opted for an engineering technology advanced degree, some went into management and a few into other fields, but 745 officers in this career field with an engineering BS earned an MS in engineering technology. This choice would be extremely rare in civilian higher education.

**Figure 1c, Ratio: Current-Degree-Title/Original-Degree-Title, Jan 02**



The source of advanced degrees in the operations career field is shown in Figure 1d. The occurrence of self-funded advanced degrees in the operations career field is very high. Of the 12,363 advanced degrees held by offices in this career field, 10, 845 or 87.7% were earned as self-funded, almost always at night school. This is higher than the Air Force wide average of 71.9%. Apparently the duty demands of the operations career field allow less opportunity for fully funded graduate education.

**Figure 1d: Source of Advanced Degree, AFSC 1xxx, Jan 02**

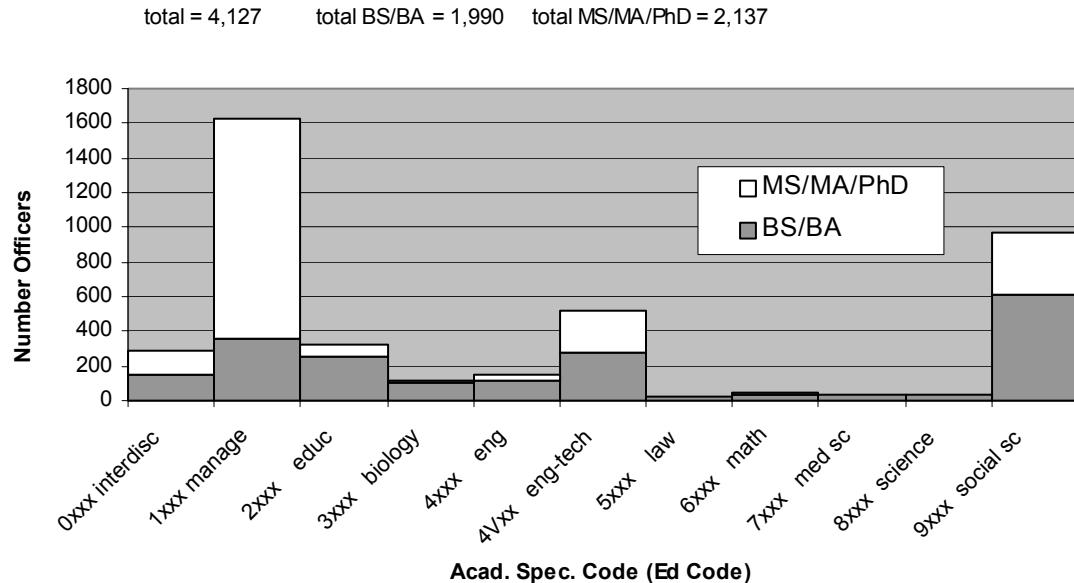


\* other includes USAFA programs, educational delay and bootstrap

### Logistics Career Field, AFSC = 2xxx

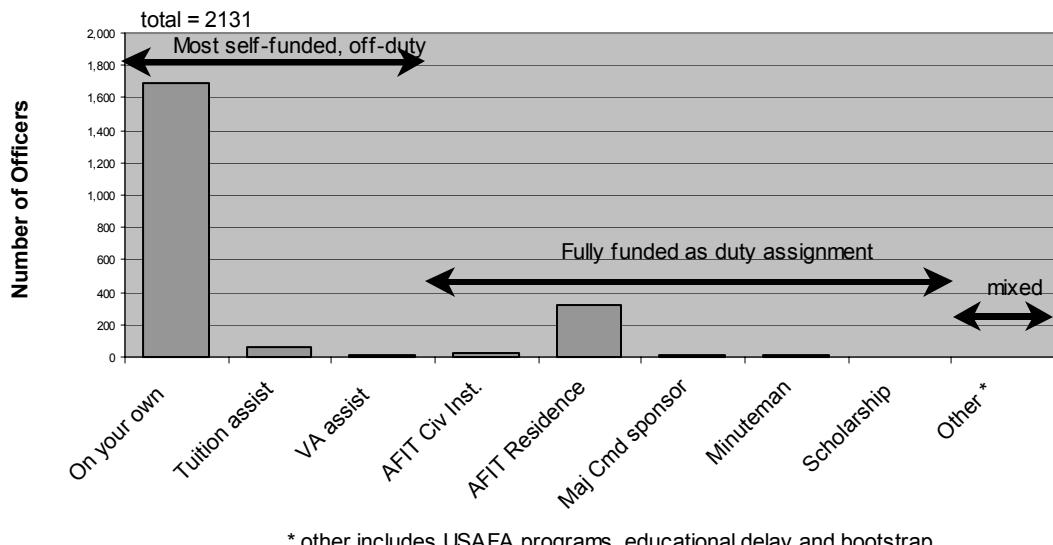
Figure 2a shows the logistics career field broken down by educational area.

**Figure 2a, Logistics Career Field (AFSC = 2xxx), Jan 02**



The percentage of advanced degrees in the logistics career field is 51.8%. The distribution of academic specialties in the logistics field is roughly the same as the Air Force wide distribution with the exception of fewer (by percent) engineering degrees both BS and MS. The majority (79%) of the degrees in this field are self-funded. Figure 2b shows the method of acquiring the advanced degree for logistics officers:

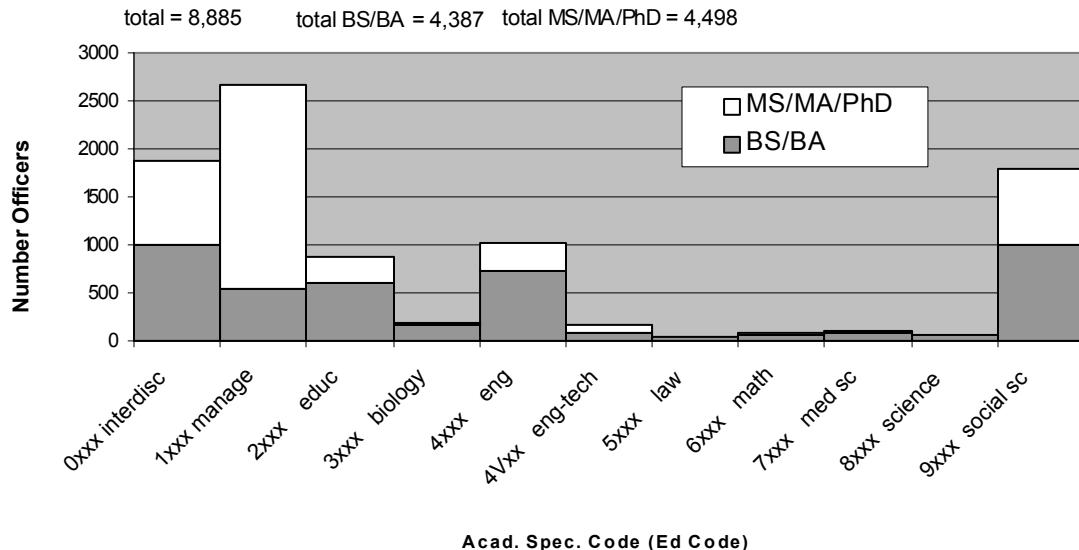
**Figure 2b: Source of Advanced Degree, AFSC 2xxx, Jan 02**



### Support Career Field, AFSC = 3xxx

Figure 3a shows the support career field broken down by educational area.

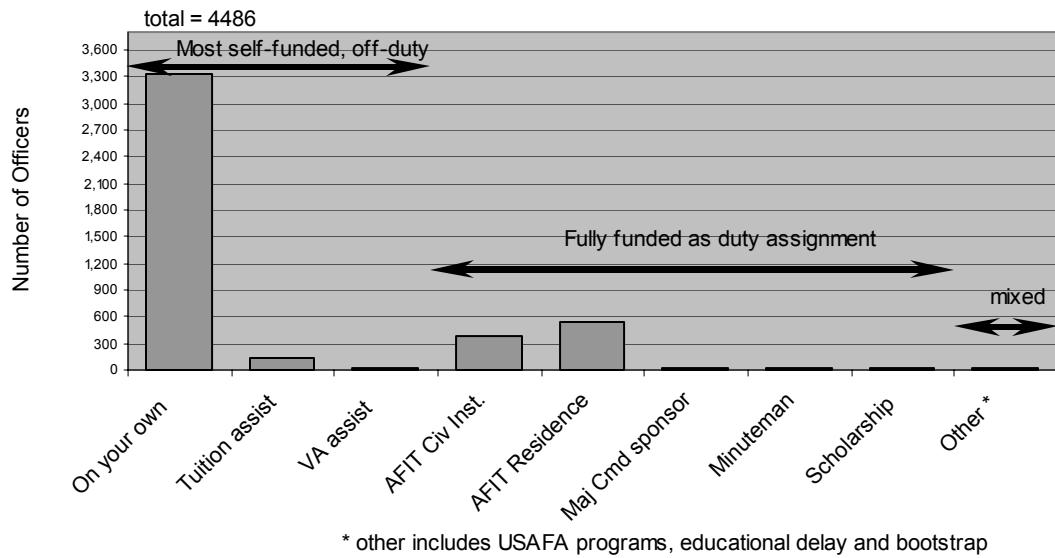
**Figure 3a, Support Career Field (AFSC = 3xxx), Jan 02**



The fraction of advanced degrees in the support career field is just over half (50.6%). The majority of the advanced degrees in this field are in management and the interdisciplinary area. Since this career field includes communications and computer engineers, the high number of interdisciplinary degrees, both bachelors and masters, is not unusual. The low number of engineering technology degrees (compared to most other career fields) is unusual. No explanation is apparent.

The source of advanced degrees in this field is again most self-funded as is shown in Figure 3b. The majority is again self-funded (74.2%) but the percentage of fully funded degrees (most AFIT residence and AFIT civilian institutions) is higher than the previous two career areas at 21.6%. This is explained by the presence of both computer engineers and civil engineers within the support career field.

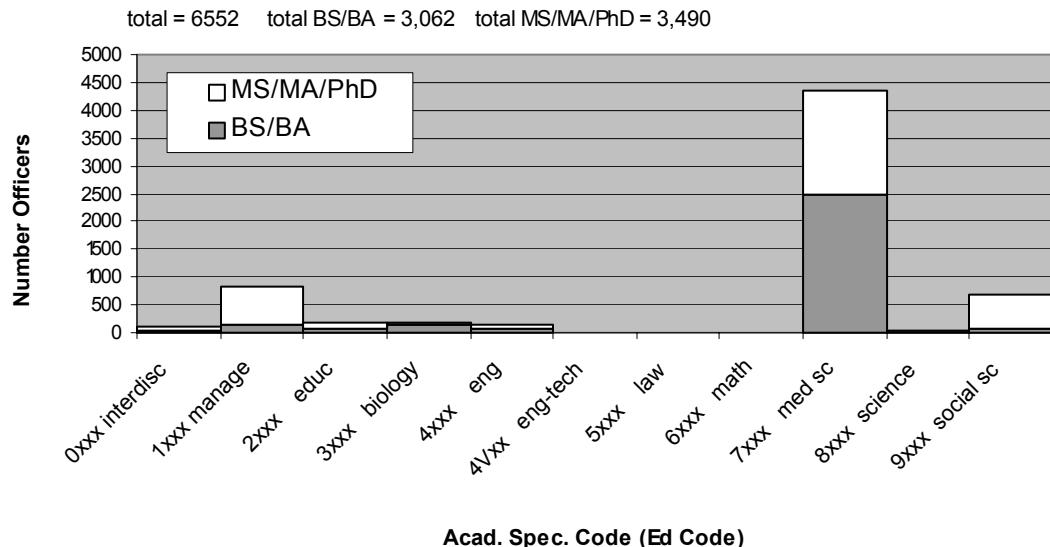
**Figure 3b: Source of Advanced Degree, AFSC 3xxx, Jan 02**



### Medical Career Field, AFSC = 4xxx

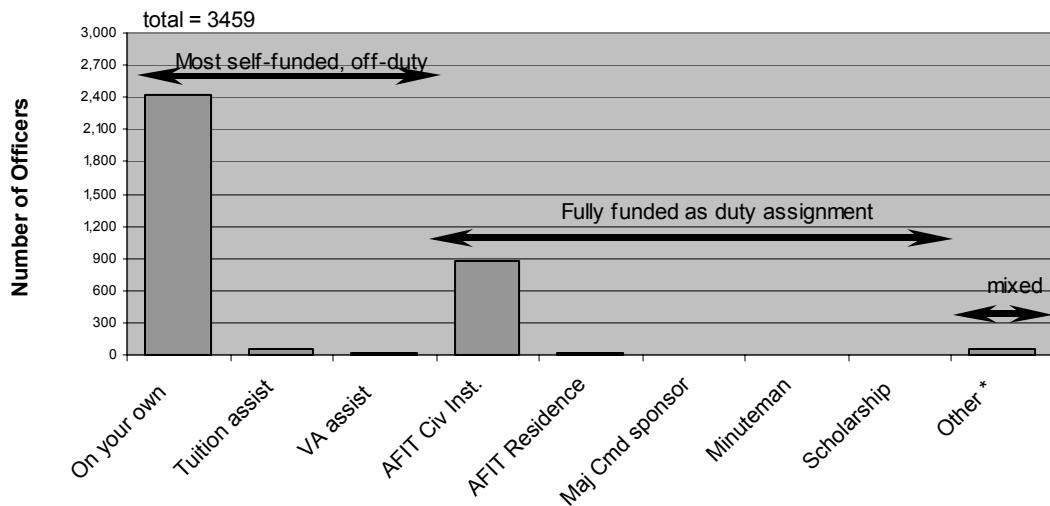
Figure 4a shows the medical career field broken down by educational area. No surprises here. The majority has degrees in the medical sciences academic area.

**Figure 4a, Medical Career Field (AFSC = 4xxx), Jan 02**



The source of the advanced degrees is shown in Figure 4b. Again the vast majority of advanced degrees are self-funded

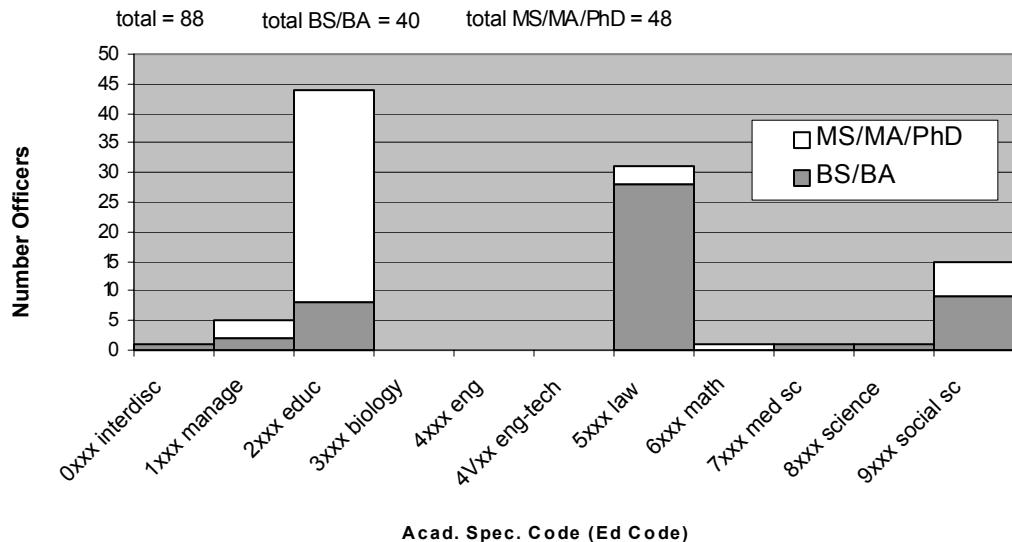
**Figure 4b: Source of Advanced Degree, AFSC 4xxx, Jan 02**



### Law/Chaplain Career Field, AFSC = 5xxx

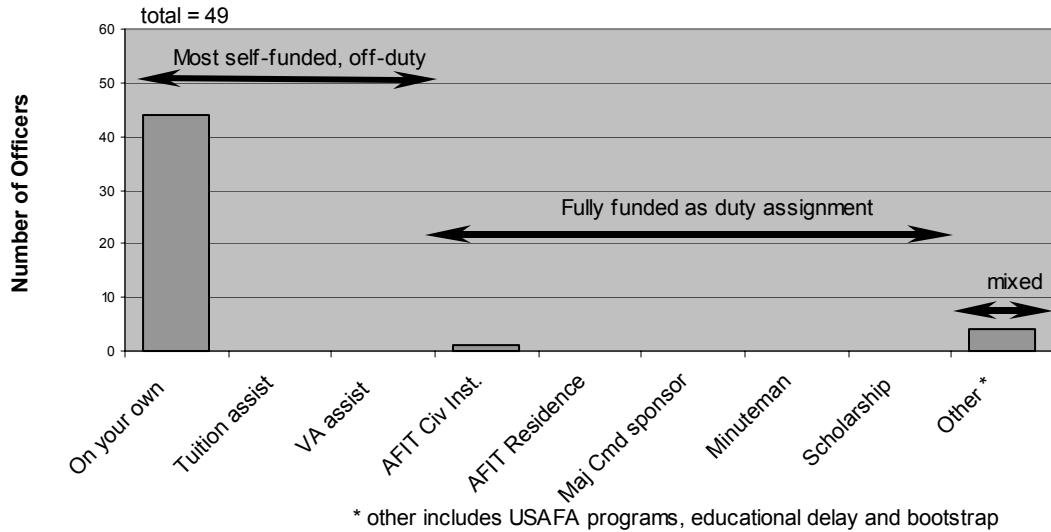
Figure 5a shows the law/chaplain career field broken down by educational area. Not surprisingly, the degrees for this field fall mainly in education (religious), law and social sciences. The percentage advanced degree is well over 50% (but the numbers are very small compared to other career fields).

**Figure 5a, Law/Chaplain Career Field (AFSC = 5xxx), Jan 02**



The source of the advanced degrees is shown in Figure 5b. Again the vast majority of advanced degrees are self-funded.

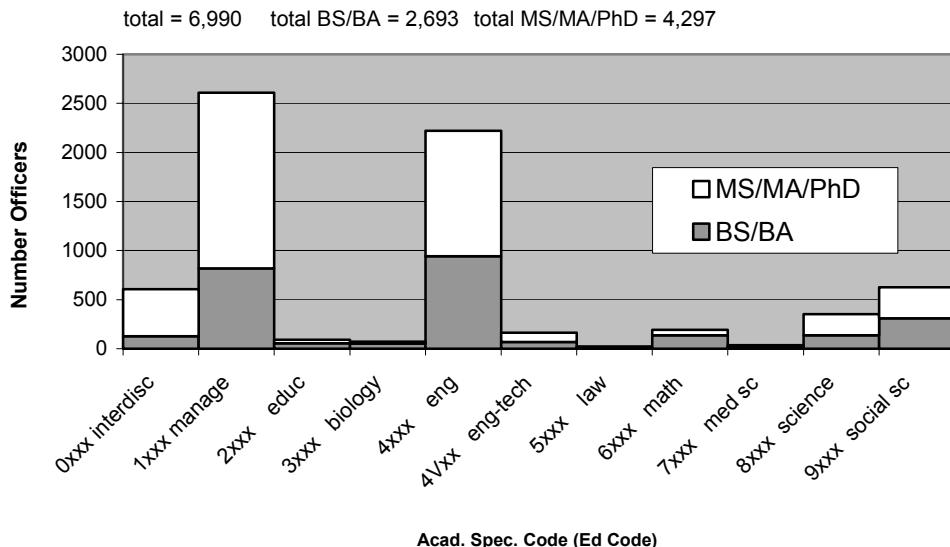
**Figure 5b: Source of Advanced Degree, AFSC 5xxx, Jan 02**



### Acquisitions Career Field, AFSC = 6xxx

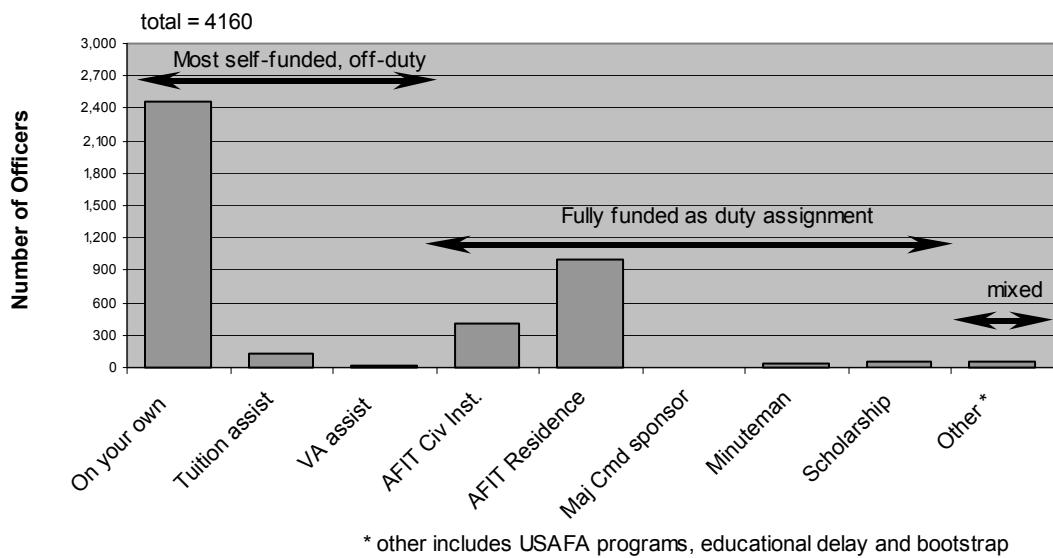
Figure 6a shows the acquisitions career field broken down by educational area. With the exception of the special duty career field, the percentage of advanced degree for this career field is the highest of any career field, 61.5%. Engineering Technology degrees (4Vxx) are proportionately smaller in this field, than any other career field.

**Figure 6a, Acquisition Career Field (AFSC = 6xxx), Jan 02**



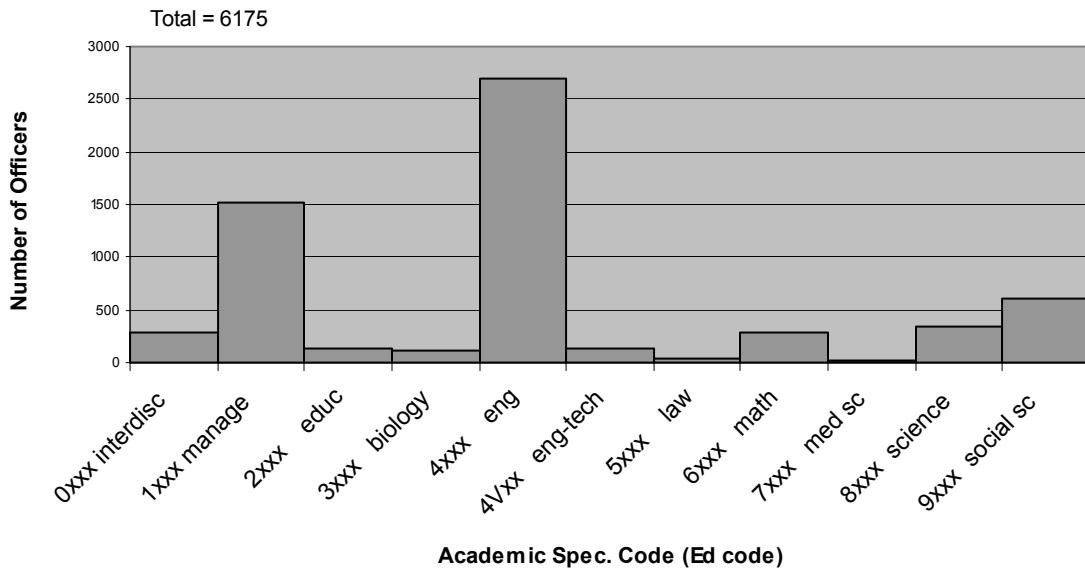
While large numbers of these advanced degrees were fully funded (mostly through AFIT residence and civilian institutions), a even larger number were self-funded as shown in Figure 6b. The relatively large numbers of AFIT Residence as a source of graduate degrees for the Acquisitions Career field is a direct result of the Air Force requirements system that has validated advanced degrees in science and engineering almost exclusively in this career field.

**Figure 6b: Source of Advanced Degree, AFSC 6xxx, Jan 02**



The original degrees (at commission) of officers in the acquisition career field are shown in Figure 6c

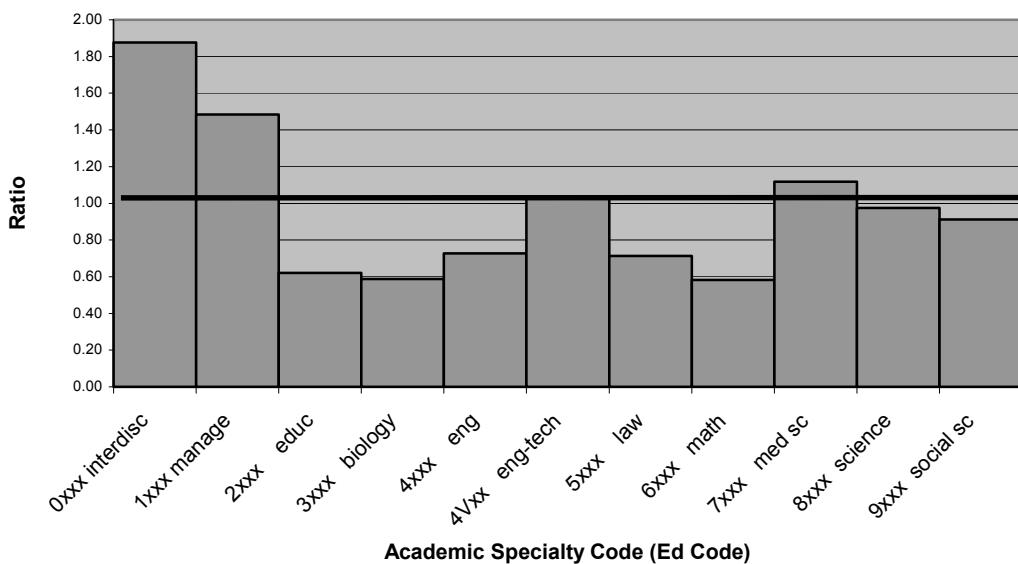
**Figure 6c: Acquisition Career Field (AFSC = 6xxx) Original BS Deg. Jan 02**



f

Figure 6d shows the ratio of current degree title to original degree title. Again those academic area showing a ratio of less than one show an outflow of officers from their undergraduate discipline to some other graduate discipline. Outflows in education, biology, law and mathematics is not surprising but the outflow in engineering is surprising. Even in the Acquisition Career Field, the current requirements system is converting engineers to graduate degrees in mostly the management and interdisciplinary areas.

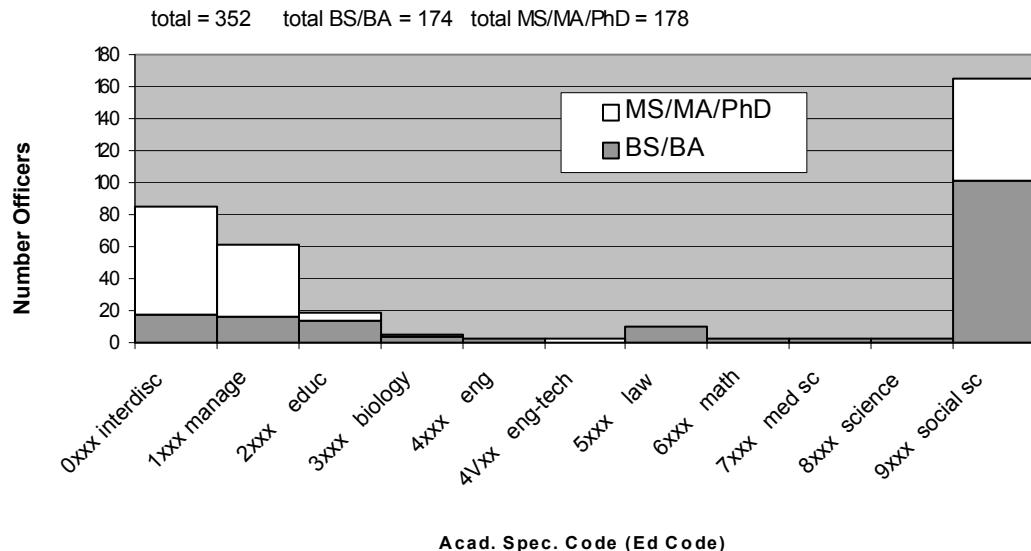
**Figure 6d: Ratio: Current-Degree-Title/Original-Degree Title, AFSC 6xxx, Jan 02**



### Special Investigations Career Field, AFSC = 7xxx

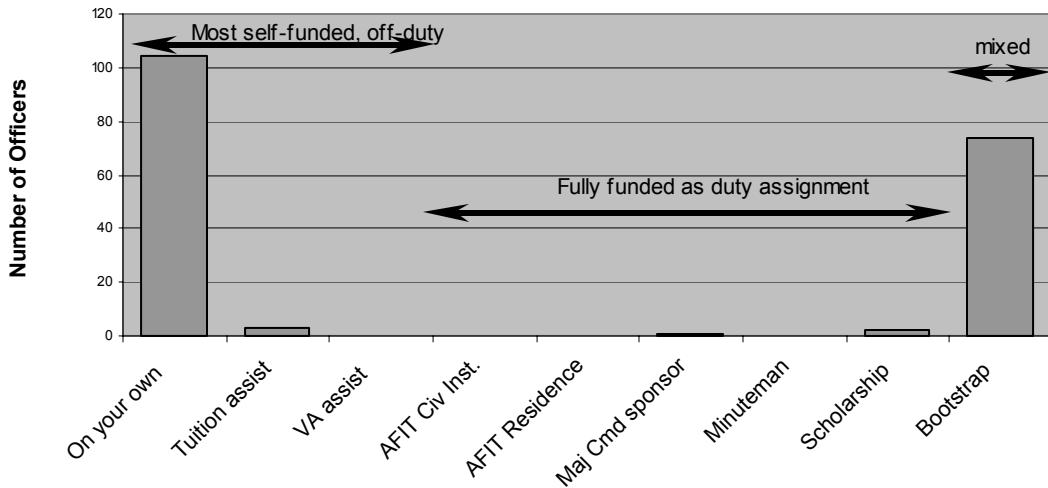
Figure 7a shows the special investigations career field broken down by educational area. The concentration in social sciences includes criminology and like specialties.

**Figure 7a, Special Investigations Career Field (AFSC = 7xxx), Jan 02**



The source of the advanced degrees in this field is almost exclusively “on your own” and bootstrap. (TDY to school for the final term(s) with tuition borne by the officer. The special investigations career field shows a greater utilization of bootstrap than any other field.

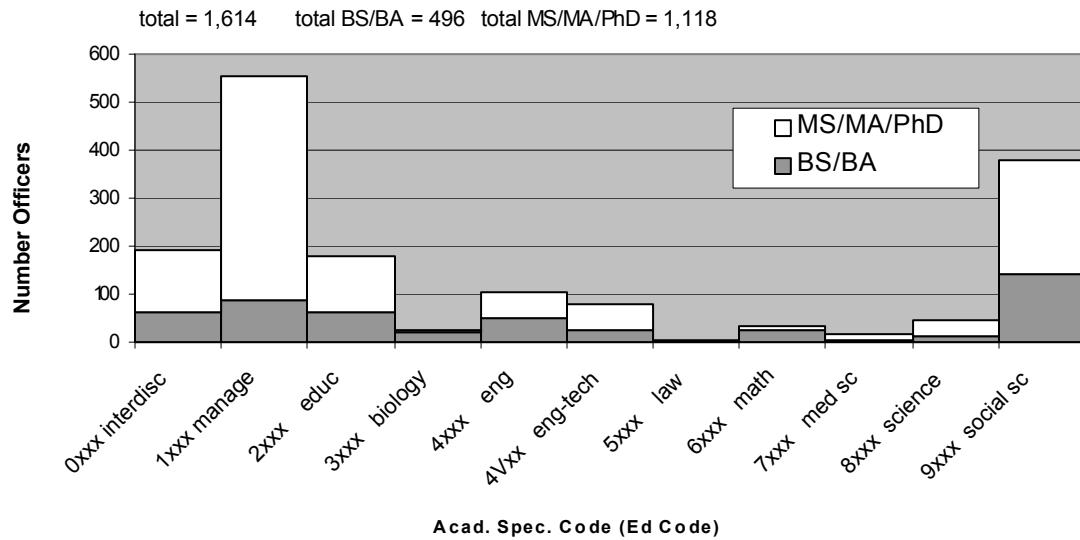
**Figure 7b: Source of Advanced Degree, AFSC 7xxx, Jan 02**  
total = 184



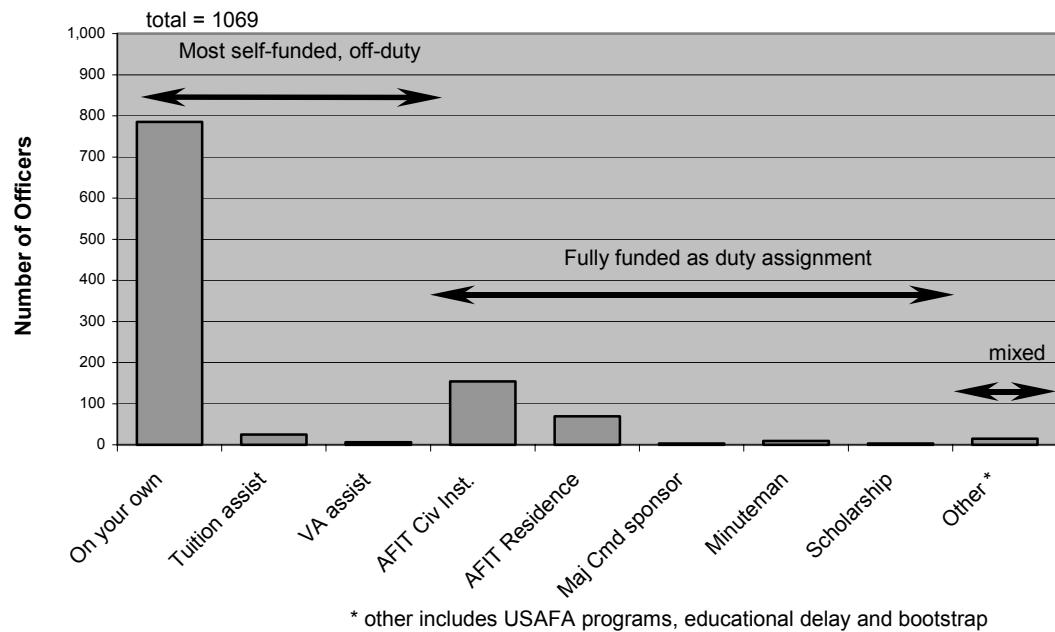
### Special Duty Career Field, AFSC = 8xxx

Figure 8a shows the special duty career field broken down by educational area. It has the greatest percentage of advanced degrees (69.3%) than any career field. The distribution of educational areas is roughly proportional to the operations career field except for a depletion of the engineering area.

**Figure 8a, Special Duty Identifiers (AFSC = 8xxx), Jan 02**



The source of the advanced degrees is shown in Figure 8b. Again self-funding predominates

**Figure 8b: Source of Advanced Degree, AFSC 8xxx, Jan 02**

## Appendix A: Academic Specialty Code Definitions

The Academic Specialty Code (or “ed code”) is a four digit code where the first character represents the general area of study; for example 8 represents Physical Sciences. The second character is the major academic field; for example 8C is Chemistry. The third character is the specialization; for example 8CC is Biochemistry. The fourth character is the sub-specialization; for example 8CCM is Microbiological Chemistry.

The entries below list the major academic fields in each area. The fields are listed in approximate order of their frequency of appearance in the officer record. The lists below are incomplete. (The complete lists including specialties and subspecialties within the degree field are given at the web site: <http://rr/afit.edu/coding/accode.htm>).

**0xxx, Interdisciplinary Studies:** Computer science, information systems management, systems management, national security and strategic studies, liberal studies, operations research, area specialists, space operations and strategic intelligence.

**1xxx, Administration and Management:** Business administration, accounting, financial management, logistics management, environmental management, information systems management, maintenance management, personnel, transportation systems, and military arts and sciences.

**2xxx, Arts, Humanities and Education:** Education (all levels), communication arts, languages, fine arts, recreation, humanities, religion and philosophy.

**3xxx, Biological and Agricultural Sciences:** Biology, health physics, and agricultural sciences

**4xxx, Engineering and Technologies:** Electrical, mechanical, civil, aeronautical, aerospace, engineering science, industrial, computer, and engineering technologies of all types.

**5xxx, Law:** All specialties.

**6xxx, Mathematics:** Pure and applied mathematics and statistics.

**7xxx, Special Investigations:** Self-explanatory.

**8xxx, Special Duty Identifiers:** Miscellaneous but mostly officers involved in the delivery of training, instructors, training managers, etc. Does not include faculty at Air University or Academy who maintain their basic specialty code, usually with a “T” prefix (for instructor).

## APPENDIX B: Air Force Specialty Code Definitions

The Air Force Specialty Code is a four digit code describing Officers job descriptions. The first digit designates the career area while the second through fourth digits designate specialization within the field. ( See AFMAN 36-2105, dated 31 October 2000 for complete lists.)

**0xxx, Pipeline:** Consists mostly of officers in training that will result in the award of an AFSC.

**1xxx, Operations:** Pilots, navigators, space and missile specialists, intelligence and weather officers.

**2xxx, Logistics:** Aircraft maintenance, munitions and missile maintenance, supply and transportation.

**3xxx, Support:** Communications and information engineers (computers), civil engineers, security forces, manpower.

**4xxx, Medical:** Biomedical clinicians and specialists (e.g. Optometrists, Pharmacists etc.) but not physicians, nurses, or dentists who are not listed on the basic data used here.

**5xxx, Law/Chaplain:** Self-explanatory.

**6XXX, Acquisition and Financial Management:** Scientists, engineers acquisition managers, financial officers.

**7xxx, Medical Sciences:** Nursing, pharmacology, physical therapy, laboratory specialty, hospital administration.

**8xxx, Physical Sciences:** Meteorology, Physics, Chemistry, Earth Science.

**9xxx, Social Sciences:** Political Science, psychology, public administration, history, sociology, criminal justice, economy, geography.

## REPORT DOCUMENTATION PAGE

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<p>The college degrees held by the United States Air Force Officer Corps are presented and analyzed. The basic data came from the "uniform officer record" dated January 31, 2002. The data is presented for the Officer Corps as a whole (Part I) and separately for the individual officer career fields (Part II). The percentage of officers holding an advanced degree is 52%, well above any comparable civilian benchmark. The majority of these advanced degrees (72%) were self-funded, mostly earned off-duty (night school). The data shows an unusually large number of masters degrees in engineering technology compared to civilian norms. The data also shows a systematic migration from entry BS degrees in engineering to other fields including but not limited to engineering technology.</p>			
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